**SYLLABUS**

**Жүйке жүйесі және неврология негіздері**

**Нервная система и основы неврологии**

**Nervous system and basics of neurology**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **1.** | **General information about the discipline** | | | |
| 1.1 | Faculty/School:  Graduate School of Medicine | | 1.6 | Credits (ECTS):  6 |
| 1.2 | Educational program (EP):  6B10103 ЖАЛПЫ МЕДИЦИНА  6B10103 ОБЩАЯ МЕДИЦИНА  6B10103 GENERAL MEDICINE | | 1.7 | **Prerequisites:**  Pathology of organ's and system-2  **Postrequisites:**  Special disciplines |
| 1.3 | Agency and year of accreditation of the EP  IAAR 2021 | | 1.8 | SIW/SPM/SRD (qty):  60 hours |
| 1.4 | Name of discipline:  **Жүйке жүйесі және неврология негіздері**  **Нервная система и основы неврологии**  **Nervous system and basics of neurology** | | 1.9 | SRSP/SRMP/SRDP (number):  30 hours |
| 1.5 | Discipline ID: NSiON4223  Discipline code: 90328 | | 1.10 | ***Required - yes*** |
| **2.** | **Description of the discipline** | | | |
|  | The discipline includes the study of the pathogenesis, pathology, clinical presentation of problems and clinically oriented pharmacology of the nervous system pathology, the principles of diagnosis and treatment of the most frequent diseases of the nervous system. Training involves the development of clinical argumentation, analytical and problem-oriented thinking, a deep understanding of the problem in a clinical context; development and development of clinical diagnostic skills and reasonable formation of a syndromic diagnosis. | | | |
| **3** | **Purpose of the discipline** | | | |
| To acquaint students with the basics of neurology, providing them with fundamental knowledge about the structure and functions of the nervous system, as well as pathologies and methods for diagnosing and treating neurological diseases, as well as developing skills in clinical diagnosis and examination of patients with neurological symptoms, preparing future medical professionals for competent and empathic work with patients suffering from neurological disorders. | | | | |
| **4.** | **Learning outcomes (LО) by discipline (3-5)** | | | |
|  | LO disciplines | | LO according to the educational program,  with which the LO is associated by discipline  (LO No. from the EP passport) | |
| 1 | Apply knowledge of pathogenesis of the nervous system for targeted questioning and physical examination of the patient, taking into account age-related features and determining diagnostic and therapeutic interventions related to common diseases of the nervous system. | 3 | 1. To apply detailed knowledge of the typical structure and functions of the human body at the level from molecules to cells of organs and the whole organism; apply knowledge of the main pathological processes and biological damage that they cause. | |
| 2 | Interpret the basic data a special neurological and laboratory and instrumental examination in the pathology of the nervous system. | 3 | 1. Collect information from patients and other sources related to the diagnosis, treatment and prevention of common and emergency conditions, including the performance of diagnostic procedures. | |
| 3 | Integrate knowledge to identify the main syndromes of the nervous system: headache, dizziness, tremor, hyperkinesis, back pain, memory impairment, cerebral, meningeal symptoms, pathological reflexes, tension symptoms, epileptic seizures, migraine attack, myasthenic crisis. | 3 | 1. Identify and interpret the clinical symptoms and syndromes, the data of laboratory and instrumental methods of research of patients with the most common diseases in their typical manifestation and course in the age aspect; interpret, analyze, evaluate, and prioritize relevant data for developing a plan for diagnosing and managing a disease, including initiating appropriate interventions. | |
| 4 | To identify the main focal symptoms and syndromes: impaired sensitivity, level of lesion of the motor sphere, types of hyperkinesis, akinetiko-rigid syndrome, types of ataxia, damage to the spinal cord, brain stem, cranial nerves, disorders of the autonomic nervous system; syndromes of the defeat of the cerebral cortex. | 3 | 1. Integrate clinical skills and knowledge to provide individualized approach in the treatment of a specific patient, and the strengthening of health in accordance with its needs; make professional decisions based on the analysis of the rationality of diagnosis and applying the principles of evidence-based and personalized medicine. | |
| 5 | Interpret the neuro-psychological and emotional development of children and adolescents in the age aspect | 3 | 1. Apply knowledge of the basic principles of human behavior for effective communication and therapeutic and diagnostic process in compliance with the principles of ethics and deontology; apply knowledge of the psychology of the patient, taking into account cultural characteristics and race; demonstrate skills in teamwork, organization and management of the diagnostic and therapeutic process; effectively build dynamic relationships between doctor and patient, which occur before, during and after medical treatment; effectively communicate medical information verbally and in writing to provide safe and effective care for patients; work effectively in an interprofessional / multidisciplinary team with other health care professionals; | |
| 6 | To diagnose and know the principles of treatment of acute disorders of cerebral circulation, meningeal and cerebral syndrome (meningitis and encephalitis), coma, estrapiramidnye disorders, epilepsy, myasthenia gravis, myelitis, assume multiple sclerosis | 3 | 1. To provide medical care for the most common diseases in patients of all age groups, in urgent and life-threatening conditions; | |
| 7 | Understand how disorders of the nervous system lead to mental and physical disability, as well as the extent to which the social and economic context affects the ability of patients to function with such a disability. | 3 | 1. To apply knowledge of the rights, duties and ways of protecting the rights of the physician and the patient, including the child as a patient, in their professional activities; apply medical knowledge, clinical skills and professional attitude to the patient regardless of his age, culture, faith, traditions, nationality, lifestyle. | |
| 8 | Describe the social, economic, ethnic and racial factors that play a role in the development, diagnosis and treatment of neurological diseases. | 3 | 8. Analyze and maintain the necessary documentation and organization of documents in health care organizations; the use of modern information and digital technology, and health information systems for professional applications | |
| 9 | Know the classification, mechanism of action, pharmacokinetics, side effects, indications and contraindications to the use of drugs that affect the nervous system and are used in the treatment of diseases of the nervous system. | 3 | 9. Apply knowledge of the principles and methods of formation a healthy human and family life, population health; apply knowledge of a set factors that determine health and disease for the purpose of prevention | |
| 10 | Demonstrate effective skills during the interview and examination of the neuropsychological status of patients. | 4 | 10. Demonstrate commitment to the highest standards of professional responsibility and honesty; observe ethical principles in all professional interactions with patients, families, colleagues and society as a whole, regardless of ethnic characteristics, culture, gender, economic status or sexual orientation; | |
| 11 | -Demonstrate a commitment to professional values, such as altruism, compassion, empathy, responsibility, honesty and respect for the principles of confidentiality | 4 | 11. Demonstrate the need for continuing professional education and the improvement of their knowledge and skills throughout their professional activities | |
| **5.** | **Summative assessment methods** (mark (yes – no) / specify your own): | | | |
| 5.1 | MCQ testing for understanding and application | | 5.5 | Scientific project SSRW (student’s scientific research work) |
| 5.2 | Practical skills – Miniclinical exam (MiniCex) | | 5.6 | 360 score - behavior and professionalism |
| 5.3 | 3. SIW- **creative task** | | 5.7 | Midterm control:  Stage 1 - MCQ testing for understanding and application  Stage 2 – passing practical skills (miniclinical exam (MiniCex) |
| 5.4 | Medical history | | 5.8 | Exam:  Stage 1 - Testing on MCQ for understanding and application  Stage 2 - OSCE with NP |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **6.** | **Detailed information about the discipline** | | | | | | | | | | | | | | | | | | | |
| 6.1 | Academic year:  2023-2024 | | | | | | | | | | | | | 6.3 | | Timetable (сабақ күні, уақыт):  From 8.00 to14.00 | | | | |
| 6.2 | Semester:  8 semester | | | | | | | | | | | | | 6.4 | | Place  (educational building, office, platform and link to the DOT learning meeting):  City Clinical Hospital №1, City Clinical Hospital №7 | | | | |
| **7.** | **Discipline leader** | | | | | | | | | | | | | | | | | | | |
| Position | | | | | Full name | | | | | | | | Department | | Contact information  (tel., e-mail) | | | Consultations before exams | |
| Senior lecturer | | | | | Madenbay K.  Nurlanova Z | | | | | | | | Clinical discipline | | 8 (747) 406 02 57  8 (775) 756-24-24 | | | Before the examination session within 60 minutes | |
| **8.** | **The content of the discipline** | | | | | | | | | | | | | | | | | | | |
|  | Name of the topic | | | | | | | | | | | | | | | | Study hours | | Conducting form | |
|  | Review of anatomy and physiology of the nervous system. Elements of the nervous system. Neurons and synapses. Neurotransmitters and receptors. The Clinical Interview in Neurology. Neurological examination of a healthy patient. | | | | | | | | | | | | | | | | 6 | | Formative Assessment:  Use of active learning methods: TBL, CBL  Patient interaction  Mini-conference on the SIW topic | |
|  | Sensory system and disturbance of sensitivity. | | | | | | | | | | | | | | | | 6 | | Formative Assessment:  Use of active learning methods: TBL, CBL  Patient interaction  Mini-conference on the SIW topic | |
|  | Motor system. Central components of the motor system and lesions of central motor pathways | | | | | | | | | | | | | | | | 6 | | Formative Assessment:  Use of active learning methods: TBL, CBL  Patient interaction  Mini-conference on the SIW topic | |
|  | Motor system. Peripheral components of the motor system and clinical syndromes of lesions affecting them | | | | | | | | | | | | | | | | 6 | | Formative Assessment:  Use of active learning methods: TBL, CBL  Patient interaction  Mini-conference on the SIW topic | |
|  | Cerebellum and extrapyramidal system. | | | | | | | | | | | | | | | | 6 | | Formative Assessment:  Use of active learning methods: TBL, CBL  Patient interaction  Mini-conference on the SIW topic | |
|  | Brain stem and cranial nerves. I, II, III, IV, V, VI cranial nerves. Trigeminal neuralgia | | | | | | | | | | | | | | | | 6 | | Formative Assessment:  Use of active learning methods: TBL, CBL  Patient interaction  Mini-conference on the SIW topic | |
|  | VII and VIII cranial nerves. Facial neuropathy | | | | | | | | | | | | | | | | 6 | | Formative Assessment:  Use of active learning methods: TBL, CBL  Patient interaction  Mini-conference on the SIW topic | |
|  | IX, X, XI, XII cranial nerves. Bulbar and pseudobulbar syndromes | | | | | | | | | | | | | | | | 6 | | Formative Assessment:  Use of active learning methods: TBL, CBL  Patient interaction  Mini-conference on the SIW topic | |
|  | Autonomic nervous system. Autonomic innervation and functional disturbances of individual organs. ANS assessment methods | | | | | | | | | | | | | | | | 6 | | Formative Assessment:  Use of active learning methods: TBL, CBL  Patient interaction  Mini-conference on the SIW topic | |
| **Midterm control 1** | | | | | | Summative evaluation:  2 stages:  1-stage – MCQ testing for understanding and application - 40%  2-stage – mini clinical exam (MiniCex) - 60% | | | | | | | | | | | | | |
|  | Higher cortical functions and their impairment by cortical lesions. Assessment methods. Meninges of the brain and spinal cord; cerebrospinal fluid and ventricular system | | | | | | | | | | | | | | | | 6 | | Formative Assessment:  Use of active learning methods: TBL, CBL  Patient interaction  Mini-conference on the SIW topic | |
|  | Cerebrovascular diseases. | | | | | | | | | | | | | | | | 6 | | Formative Assessment:  Use of active learning methods: TBL, CBL  Patient interaction  Mini-conference on the SIW topic | |
|  | Paroxysmal conditions in neurology. | | | | | | | | | | | | | | | | 6 | | Formative Assessment:  Use of active learning methods: TBL, CBL  Patient interaction  Mini-conference on the SIW topic | |
|  | Injuries to the brain, spinal cord and peripheral nervous system. | | | | | | | | | | | | | | | | 6 | | Formative Assessment:  Use of active learning methods: TBL, CBL  Patient interaction  Mini-conference on the SIW topic | |
|  | Infectious and inflammatory diseases of the nervous system. | | | | | | | | | | | | | | | | 6 | | Formative Assessment:  Use of active learning methods: TBL, CBL  Patient interaction  Mini-conference on the SIW topic | |
|  | Hereditary degenerative diseases of NS. Demyelinating diseases of NS | | | | | | | | | | | | | | | | 6 | | Formative Assessment:  Use of active learning methods: TBL, CBL  Patient interaction  Mini-conference on the SIW topic | |
|  | Hereditary neuromuscular diseases. | | | | | | | | | | | | | | | | 6 | | Formative Assessment:  Use of active learning methods: TBL, CBL  Patient interaction  Mini-conference on the SIW topic | |
| **Midterm control 2** | | | | | | | Summative evaluation:  2 stages:  1-stage – MCQ testing for understanding and application - 40%  2-stage – mini clinical exam (MiniCex) - 60% | | | | | | | | | | | | |
| **Final control (Exam)** | | | | | | | Summative evaluation:  2 stages:  1-stage – MCQ testing for understanding and application - 40%  2- stage – ОSCE with NP - 60% | | | | | | | | | | | | |
| **Total** | | | | | | | | | | | | | | | | | | **100** | |
| **9.** | **Methods of teaching in the discipline**  (briefly describe the approaches to teaching and learning that will be used in teaching)  Using active learning methods: TBL, CBL | | | | | | | | | | | | | | | | | | | |
| 1 | **Methods of formative assessment:**  TBL – Team Based Learning  CBL – Case Based Learning | | | | | | | | | | | | | | | | | | | |
| 2 | **Summative assessment methods (from point 5):**  1. MCQ testing for understanding and application  2. Passing practical skills - miniclinical exam (MiniCex)  3. SIW - **creative task**  4. Medical history  5. Scientific project SSRW (student’s scientific research work)  6. 360 score - behavior and professionalism | | | | | | | | | | | | | | | | | | | |
| **10.** | **Summative assessment** | | | | | | | | | | | | | | | | | | |
| **№** | **Forms of control** | | | | | | | | **General % from total %** | | | | | | | | | | |
| 1 | Patient history defence | | | | | | | | 30% (estimated by the checklist) | | | | | | | | | | |
| 5 | Border control | | | | | | | | 70%  (1-stage – MCQ testing for understanding and application - 40%;  2- stage – mini clinical exam (MiniCex) - 60%) | | | | | | | | | | |
| **Border control 1** | | | | | | | | | 30% +70% = 100% | | | | | | | | | | |
| 1 | Patient history defence | | | | | | | | | | | 20% (estimated by the checklist) | | | | | | | | | | |
| 2 | 360 score - behavior and professionalism | | | | | | | | | | | 10% (estimated by the checklist) | | | | | | | | | | |
| 3 | Scientific project SSRW (student’s scientific research work) | | | | | | | | | | | 10% | | | | | | | | | | |
| 5 | Border control | | | | | | | | | | | 60%  (1-stage – MCQ testing for understanding and application - 40%;  2- stage – mini clinical exam (MiniCex) - 60%) | | | | | | | | | | |
| **Border control 2** | | | | | | | | | | | 20+10+10 + 60 = 100% | | | | | | | | | | |
| 9 | Exam | | | | | | | | **2 stages:**  1st stage - testing on MCQ for understanding and application - 40%  2nd stage - OSCE with NP - 60% | | | | | | | | | | |
| 10 | **Final score:** | | | | | | | | ASR 60% + Exam 40% | | | | | | | | | | |
| **10.** | **Score** | | | | | | | | | | | | | | | | | | |
| **Rating by letter system** | | | **Digital**  **equivalent** | | | | | **Points**  **(% content)** | | | | | | | **Assessment Description**  (changes should be made only at the level of the decision of the Academic Committee on the quality of the faculty) | | | | |
| А | | | 4,0 | | | | | 95-100 | | | | | | | **Excellent.** Exceeds the highest job standards. | | | | |
| А- | | | 3,67 | | | | | 90-94 | | | | | | | **Excellent.** Meets the highest job standards. | | | | |
| В+ | | | 3,33 | | | | | 85-89 | | | | | | | **Good.** Very good. Meets high job standards. | | | | |
| В | | | 3,0 | | | | | 80-84 | | | | | | | **Good.** Meets most of the job standards. | | | | |
| В- | | | 2,67 | | | | | 75-79 | | | | | | | **Good.** More than enough. Shows some reasonable ownership of the material. | | | | |
| С+ | | | 2,33 | | | | | 70-74 | | | | | | | **Good.** Acceptable.  Meets the basic standards of the task. | | | | |
| С | | | 2,0 | | | | | 65-69 | | | | | | | **Satisfactory.** Acceptable. Meets some basic job standards. | | | | |
| С- | | | 1,67 | | | | | 60-64 | | | | | | | **Satisfactory.** Acceptable. Meets some basic job standards. | | | | |
| D+ | | | 1,33 | | | | | 55-59 | | | | | | | **Satisfactory.**  Minimally acceptable. | | | | |
| D | | | 1,0 | | | | | 50-54 | | | | | | | **Satisfactory.**  Minimally acceptable. The lowest level of knowledge and completion of the task. | | | | |
| FX | | | 0,5 | | | | | 25-49 | | | | | | | **Unsatisfactory.**  Minimally acceptable. | | | | |
| F | | | 0 | | | | | 0-24 | | | | | | | **Unsatisfactory.**  Very low productivity. | | | | |
| **11.** | **Educational resources** (use the full link and specify where you can access the texts/materials) | | | | | | | | | | | | | | | | | | | |
| Literature | | | | **Main**  **Available in the library**   |  |  |  | | --- | --- | --- | | **Author** | **Name of the book, publisher** | **Year of publication** | | Изимова Роза. | Жоғары жүйке жүйесінің анатомиясы мен физиологиясы : оқу құралы | 2021 | | Кайшибаев, Смагул К. | Основы топической и синдромологической диагностики. Ч. 1 | 2018 | | Кайшибаев, Смагул К. | Частная невропатология. Ч. 2 | 2018 | | Петрухин, Андрей Сергеевич. | Детская неврология : учебник : в 2 т. Т. 2 | 2018 | | Петрухин, Андрей Сергеевич | Детская неврология : учебник : в 2 т. Т. 1 | 2018 | | **А. С. Кадыкова** | **Практическая неврология** | 2016 | | Төлеусаринов А. М. | Жалпы неврология : оқулық | 2018 | | Гусев, Евгений Иванович | . Неврология және нейрохирургия : екі томдық оқулық. 1-том | 2016 | | Гусев, Евгений Иванович | Неврология және нейрохирургия : екі томдық оқулық. 2-том | 2016 | | Гусев, Евгений Иванович. | Неврология и нейрохирургия : учебник в двух томах. Т. 1 | 2018 | | Гусев, Евгений Иванович. | Неврология и нейрохирургия : учебник в двух томах. Т. 2 | 2018 | | Гусев, Евгений Иванович. | Неврологические симптомы, синдромы и болезни : энциклопедический справочник | 2014 | | P. L. Robert et al | International Neurology | 2016 |  |  |  |  | | --- | --- | --- | | Dale Purves | NEUROSCIENCE, Sixth Edition | **2011** | | [Aaron L. Berkowitz](https://pdfdrive.to/author/aaron-l-berkowitz) | Clinical\_Neurology\_and\_Neuroanatomy\_A\_Localization\_Based\_Approach | 2022 | | Ropper | Adams And Victor’s Principles Of Neurology | 2019 | | Бер М., Фротшер М., Левин О.С. | Топический диагноз в неврологии по Петеру Дуусу | 2014 | | Fuller | Neurological\_Examination\_Made\_Easy | 2019 | | Mark Mumenthaler | Fundamentals of Neurology | 2006 | | [Mathias Baehr](https://www.pdfdrive.com/search?q=Mathias+Baehr),  [Michael Frotscher](https://www.pdfdrive.com/search?q=Michael+Frotscher) | baehr\_m\_frotscher\_m\_duus\_topical\_diagnosis\_in\_neurology\_anat | 2012 | | Swaiman | Swaiman’s Pediatric Neurology Principles and Practice | 2017 | | Гудфеллоу\_Дж\_А | Обследование\_неврологического\_больного | 2018 | | | | | | | | | | | | | | | | |
| **Additional**  **Available in the library**   |  |  |  | | --- | --- | --- | | **Автор** | **Наименование книги, издательство** | **Год издания** | | E. Wolters, C. Baumann | Parkinson Disease and Other Movement Disorders : Motor Behavioural Disorders and Behavioural Motor Disorders / | 2014 | | Preston, David C. | Electromyography and Neuromuscular Disorders : Clinical-Electrophysiologic-Ultrasound Correlations | 2021 | | Абдрахманова М. Г. | Неврологиялық науқастарды оңалтудың заманауи принциптері : оқу-әдістемелік құрал | 2019 | | Гусев, Евгений Иванович. | Неврологические симптомы, синдромы и болезни : энциклопедический справочник | 2014 | | Гусев, Евгений Иванович. | Эпилепсия и ее лечение : монография | 2016 | | Киспаева Т. Т. | Неврология туралы дәрістер : оқу құралы | 2021 | | Л. Н. Неробкова, Г. Г. Авакян, Т. А. Воронина, Г. Н. Авакян | Клиническая электроэнцефалография. Фармакоэлектроэнцефалография | 2020 | | Куанова Л. Б. | Семинары по детской неврологии : учеб. пособие | 2018 | | Н. Г. Коновалова | Неонатология: реабилитация при патологии ЦНС : учебное пособие для вузов | 2020 | | Никифоров, Анатолий Сергеевич | Неврологические осложнения остеохондроза позвоночника | 2015 | | Ф. С. Олжаев, А. К. Цой, Б. А. Умбаев | Создание экспериментальной модели фокального ишемического инсульта головного мозга путем окклюзии средней мозговой артерии : методические рекомендации | 2021 |   **Available at the department (link to Classroom)**   |  |  |  | | --- | --- | --- | | **Автор** | **Наименование книги, издательство** | **Год издания** | | Pandyan | Neurological Rehabilitation Spasticity and Contractures in Clinical Practice and Research | 2018 | | Каменова С.У. Кужибаева К.К. | Неврологиялық науқастарды клиникалық зерттеу әдістемесі | 2018 | | Неробкова | Клиническая\_электроэнцефалография. Фармакоэлектроэнцефалография |  | | Каменова С.У. Кужибаева К.К. | Методика неврологического осмотра.pdf | 2018 | | Гудфеллоу\_Дж\_А | Обследование\_неврологического\_больного | 2018 | | Пирадов М. А. | Тактика\_врача\_невролога\_Практическое\_руководство | 2020 | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | |
| Electronic resources | | | | **Internet resources:**   1. Medscape.com - <https://www.medscape.com/familymedicine> 2. Oxfordmedicine.com -<https://oxfordmedicine.com/> 3. [Uptodate.com](about:blank) **-** [**https://www.wolterskluwer.com/en/solutions/uptodate**](https://www.wolterskluwer.com/en/solutions/uptodate) 4. **Osmosis -** [**https://www.youtube.com/c/osmosis**](https://www.youtube.com/c/osmosis) 5. **Ninja Nerd -** [**https://www.youtube.com/c/NinjaNerdScience/videos**](https://www.youtube.com/c/NinjaNerdScience/videos) 6. **CorMedicale -** [**https://www.youtube.com/c/CorMedicale**](https://www.youtube.com/c/CorMedicale) **- medical video animations in Russian language.** 7. **Lecturio Medical -** [**https://www.youtube.com/channel/UCbYmF43dpGHz8gi2ugiXr0Q**](https://www.youtube.com/channel/UCbYmF43dpGHz8gi2ugiXr0Q) 8. **SciDrugs -** [**https://www.youtube.com/c/SciDrugs/videos**](https://www.youtube.com/c/SciDrugs/videos) **- video lectures on pharmacology in Russian language.** | | | | | | | | | | | | | | | |
| Simulators in the simulation center | | | |  | | | | | | | | | | | | | | | |
| Special software | | | | 1. Google classroom - available in the public domain.  2. Medical calculators: Medscape, Physician's Handbook, MD+Calc - freely available.  3. Directory of diagnostic and treatment protocols for medical workers from the RCHD, the Ministry of Health of the Republic of Kazakhstan: Dariger - available in the public domain. | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | |
| **12.** | | **Tutor Requirements and Bonus System** | | | | | | | | | | | | | | | | | |
| **A student in accordance with an individual internship plan:**  **1)** supervises patients in organizations providing pre-medical medical care, emergency medical care, specialized medical care (including high-tech), primary health care, palliative care and medical rehabilitation;  2) participates in the appointment and implementation of diagnostic, therapeutic and preventive measures;  3) conducts documentation and sanitary and educational work among the population;  4) participates in preventive examinations, medical examinations, is present at consultations;  5) participates in clinical rounds, clinical reviews;  6) participates in duty at least four times a month in medical organizations (duty is not taken into account when calculating the workload of an internship student);  7) participates in clinical and clinical-anatomical conferences;  8) is present at pathoanatomical autopsies, participates in the research of autopsy, biopsy and surgical materials;  9) under the supervision of a scientific supervisor, collects material and analyzes data for a scientific project.  **Bonus system:**  For extraordinary achievements in the field of future professional activity (clinical, scientific, organizational, etc.), additional points up to 10% of the final assessment can be added to the student (by the decision of the department) | | | | | | | | | | | | | | | | | | | |
| **13.** | | **Discipline policy (части, выделенные зеленым, пожалуйста, не изменяйте)** | | | | | | | | | | | | | | | | | |
|  | | Discipline policy is determined by the University's Academic Policy and the University's Academic Integrity Policy. If the links do not open, then you can find the relevant documents in IS Univer.  **Rules of Professional Conduct:**   1. **Appearance:**  * office style of clothing (shorts, short skirts, open T-shirts are not allowed to attend university, jeans are not allowed in the clinic) * Clean and ironed coat * medical mask * medical cap (or a neat hijab without hanging ends) * medical gloves * changeable shoes * neat hairstyle, long hair should be gathered in a ponytail, or a bun, for both girls and guys. Neatly short cut nails. Bright, dark manicure is prohibited. It is permissible to cover the nails with transparent varnish. * badge with full name (full name)   2) Mandatory presence of a phonendoscope, tonometer, centimeter tape, (you can also have a pulse oximeter)  3) Properly executed sanitary (medical) book (before the start of classes and must be updated on time)  **4) \* Possession of a vaccination passport or other document confirming a fully completed course of vaccination against COVID-19 and influenza**  **5) Mandatory observance of the rules of personal hygiene and safety**  **6) Systematic preparation for the educational process.**  **7) Accurate and timely maintenance of reporting documentation.**  8) Active participation in medical-diagnostic and public events of the departments.  **A student without a medical book and vaccination will not be allowed to see patients.**  **A student who does not meet the requirements for appearance and / or from whom a strong / pungent odor emanates, since such a smell can provoke an undesirable reaction in the patient (obstruction, etc.) - is not allowed to the patients!**  **Преподаватель в праве принять решение о допуске к занятиям студентов, которые не выполняют требования профессионального поведения, включая требования клинической базы!**  **Study discipline:**   1. Being late for classes or the morning conference is not allowed. In case of being late, the decision on admission to the lesson is made by the teacher leading the lesson. If there is a good reason, inform the teacher about the delay and the reason by message or by phone. After the third delay, the student writes an explanatory note addressed to the head of the department indicating the reasons for being late and is sent to the dean's office to obtain admission to the lesson. If you are late without a valid reason, the teacher has the right to deduct points from the current grade (1 point for each minute of delay) 2. Religious events, holidays, etc. are not a valid reason for skipping, being late and distracting the teacher and the group from work during classes. 3. If you are late for a good reason - do not distract the group and the teacher from the lesson and quietly go to your place. 4. Leaving the class ahead of time, being outside the workplace during school hours is regarded as absenteeism. 5. Additional work of students during study hours (during practical classes and shifts) is not allowed. 6. For students who have more than 3 passes without notifying the curator and a good reason, a report is issued with a recommendation for expulsion. 7. Missed classes are not made up. 8. The internal regulations of the clinical bases of the department are fully applicable to students 9. Greet the teacher and any senior by standing up (in class) 10. Smoking (including the use of vapes, electronic cigarettes) is strictly prohibited on the territory of medical facilities (out-doors) and the university. Punishment - up to the annulment of boundary control, in case of repeated violation - the decision on admission to classes is made by the head of the department 11. Respectful attitude towards colleagues regardless of gender, age, nationality, religion, sexual orientation. 12. Have a laptop / laptop / tab / tablet with you for studying and passing MCQ tests for TBL, boundary and final controls. 13. Taking MCQ tests on phones and smartphones is strictly prohibited..   The behavior of the student at the exams is regulated by the "Rules for the final control", "Instructions for the final control of the autumn/spring semester of the current academic year" (the current documents are uploaded to the Univer IS and are updated before the start of the session); "Regulations on checking text documents of students for the presence of borrowings." | | | | | | | | | | | | | | | | | |
| 14 | | 1. **Constantly preparing for classes:**  For example, backs up statements with relevant references, makes brief summaries  Demonstrates effective teaching skills, assists in teaching others  **2. Take responsibility for your learning:**  For example, manages their learning plan, actively tries to improve, critically evaluates information resources  3. **Actively participate in group learning:**  For example, actively participates in discussions, willingly takes tasks  **4. Demonstrate effective group skills**  For example, takes the initiative, shows respect and correctness towards others, helps to resolve misunderstandings and conflicts.  5. **Skillful communication skills with peers**:  For example, he listens actively, is receptive to nonverbal and emotional signals  Respectful attitude  **6. Highly developed professional skills:**  Eager to complete tasks, seek opportunities for more learning, confident and skilled  Compliance with ethics and deontology in relation to patients and medical staff  Observance of subordination.  **7. High introspection:**  For example, recognizes the limitations of his knowledge or abilities, without becoming defensive or reproaching others  **8. Highly developed critical thinking:**  For example, accordingly demonstrates skills in performing key tasks, such as generating hypotheses, applying knowledge to cases from practice, critically evaluating information, making conclusions aloud, explaining the process of reflection  **9. Fully complies with the rules of academic behavior with understanding, offers improvements in order to increase efficiency.**  Observes the ethics of communication – both oral and written (in chats and appeals)  **10. Fully follows the rules with full understanding of them, encourages other members of the group to adhere to the rules**  Strictly adheres to the principles of medical ethics and PRIMUM NON NOCER | | | | | | | | | | | | | | | | | |
| **15.** | | **Distance/Online Learning – Prohibited in Clinical Discipline**  (части, выделенные зеленым, пожалуйста, не изменяйте) | | | | | | | | | | | | | | | | | |
| 1. According to the order of the Ministry of Education and Science of the Republic of Kazakhstan No. 17513 dated October 9, 2018 "On approval of the List of areas of training with higher and postgraduate education, training in which in the form of external studies and online education is not allowed". According to the above regulatory document, specialties with the discipline code of health care: bachelor's degree (6B101), master's degree (7M101), residency (7R101), doctoral studies, (8D101) - training in the form of external study and online education - is not allowed.  Thus, students are prohibited from distance learning in any form. It is only allowed to work out a lesson in a discipline due to the absence of a student for reasons beyond his control and the presence of a timely confirming document (example: a health problem and presenting a confirming document - a medical certificate, a signal sheet of the PHC, an extract from a consultative appointment with a medical specialist - a doctor) | | | | | | | | | | | | | | | | | | | |
| **16.** | | **Approval and review** | | | | | | | | | | | | | | | | | |
| Department head | | | | | | | | | |  | | | | |  | | | | |
| Teaching Quality Committee  and teaching faculty | | | | | | | | | | Protocol № | | | | | Confirmation date | | | | |
| Dean | | | | | | | | | | Signature | | | | | Dean of faculty | | | | |

**THEMATIC PLAN AND CONTENT OF PRACTICAL CLASSES**

|  |  |  |  |
| --- | --- | --- | --- |
| № | Topic name | Content | What to read |
|  | 2 | 3 | 4 |
|  | **BLOCK 1** |  |  |
| 1 | Anatomical physiological introduction. Elements of the nervous system. Neurons and synapses. Neurotransmitters and receptors. | Fundamentals of the neural theory of S. Ramon-y-Cajal. A neuron as a structural and functional element of the central nervous system. Neuron, neuroglia, synapse: structure, functional significance, role in norm and pathology. The mechanism of excitation along the axon, axoplasmic current. | 1. Триумфов А.В. «Топическая диагностика заболеваний нервной системы», краткое руководство. Издательство «МЕДпресс-информ» (2015). 4-21 стр.  2. Топический диагноз в нервологии по Петеру Дуусу: учебник/ П. Дуус; под ред. М. Бера, М. Фротшера. – 3-е изд. Стр. 15-30.  3. Bähr, M., & Frotscher, M. (2019). Duus' topical diagnosis in neurology: Anatomy, physiology, signs, symptoms. Pages 2-8.  4. Manji, H., Connolly, S., Kitchen, N., Lambert, C., & Mehta, A. (2014-10). Oxford Handbook of Neurology. Pages 18-23.  5. In Innes, J. A., In Dover, A. R., In Fairhurst, K., Britton, R., & Danielson, E. (2018). Macleod's clinical examination. Pages 139-141.  Philip B Gorelick, Fernando B Testai, Graeme J Hankey, Joanna M Wardlaw (2014). Hankey’s clinical neurology. Pages 38-39.  6. «Неврологиялық науқастарды клиникалық зерттеу әдістемесі»  Методические рекомендации / С.У.Каменова и др. – Алматы, 2018.-  84с. 41-48 беттер.  **7.** Kamenova S.U., Kuzhubaeva K.K., Ospanbekova D.M. Methods of clinical examination of neurological patients / Methodical recommendations / S.U. Kamenova et al. – Almaty, 2018. Pages. 41-48.  **Internet sources:**  Tendon reflexes: <https://www.youtube.com/watch?v=BLzfLt_CSMk> Babinski Reflex in Infants <https://www.youtube.com/watch?v=b2QKXOzD8sA&t=4s> |
| 2 | Sensitivity and its disorders | Sensitivity: exteroceptive, proprioceptive, interoceptive, complex species. Afferent systems of somatic sensitivity and their structure: receptors, pathways. Anatomy and physiology of superficial and deep sensation conductors. Epicritic and protopathic sensitivity. Types of sensitivity disorders. hypo- and hyperesthesia, paresthesia and pain, dysesthesia, hyperpathy, allodynia, causalgia. Types of sensitivity disorders: peripheral, segmental, conductive, cortical. Dissociated sensitivity disorder. Neuropathophysiological, neurochemical and psychological aspects of pain. Antinociceptive system. Acute and chronic pain. Central pain. Reflected pain.  Paraclinical research methods: electroneuromyography (study of conduction velocity along sensory fibers of peripheral nerves, study of the H-reflex), somatosensory evoked potentials. Temperature perception test: <https://www.youtube.com/watch?v=7it5E9OBl2k>Neurological sensory examination: <https://www.youtube.com/watch?v=XVOVpq-41BY>Neurological peripheral vibration test: <https://www.youtube.com/watch?v=iEfyHSm2fCA>Coordination and joint position sense: <https://www.youtube.com/watch?v=Z9yRlJelcTg> | 1. Гусев Е.И., Коновалов А.Н., Бурд Г.С. «Неврология и нейрохирургия», учебник. Издательство «Медицина» ISBN 5-225-00969-7  2. Нервные болезни : учебн. пособие / А.А.Скоромец, А.П.Скоромец, Т.А.Скоромец; под ред. проф. А.В.Амелина, проф. Е.Р.Баранцевича. – 10-е изд., доп. – М. : МЕДпресс-информ, 2017. – 568 с. : ил. ISBN 978-5-00030-441-9  3. Bähr, M., & Frotscher, M. (2019). Duus' topical diagnosis in neurology: Anatomy, physiology, signs, symptoms.  4. Ropper, A. H., Samuels, M. A., & Klein, J. (2014). Adams and Victor's principles of neurology.  5. In Daroff, R. B., In Jankovic, J., In Mazziotta, J. C., In Pomeroy, S. L., & Bradley, W. G. (2016). Bradley's neurology in clinical practice.  6. Manji, H., Connolly, S., Kitchen, N., Lambert, C., & Mehta, A. (2014-10). Oxford Handbook of Neurology. Oxford, UK: Oxford University Press. Retrieved 17 Aug. 2021, from https://oxfordmedicine.com/view/10.1093/med/9780199601172.001.0001/med-9780199601172.  7. In Innes, J. A., In Dover, A. R., In Fairhurst, K., Britton, R., & Danielson, E. (2018). Macleod's clinical examination.  8. Bickley, L. S., Szilagyi, P. G., & In Hoffman, R. M. (2017). Bates' guide to physical examination and history taking.  9. Практикалық неврология: оқулық/ С.У.Каменова, К.К. Кужыбаева, А.М. Кондыбаева, Б.Е.Кенжеахметова – Алматы, 2021.- 100 бет  **Internet resources:**  1. Medscape.com  2. Oxfordmedicine.com  3. Uptodate.com |
| 3 | Movement. Central components of the motor system and lesions of central motor pathways | Modern ideas about the organization of voluntary movement. The cortical-muscular pathway: structure, functional significance. Central (upper) and peripheral (lower) motor neurons. The corticospinal tract: its functional significance for the organization of voluntary movements. The concept of reflex. Types of reflexes. Reflex arc: structure and functioning. Levels of reflex closure in the spinal cord and brain stem, importance in topical diagnostics. Surface and deep reflexes, basic pathological reflexes, protective spinal reflexes. Regulation of muscle tone: spinal reflex arc, gamma system. Suprasegmental levels of regulation of muscle tone. Muscle tone assessment. The technique of studying deep reflexes on the hands (biceps,triceps, carporadial), on the legs (knee, Achilles) and surface reflexes (abdominal, plantar). Neuropathophysiological bases of changes in physiological reflexes, pathological pyramidal reflexes, spasticity.  Central and peripheral paresis: changes in muscle tone and reflexes, trophic muscles. Clinical features of cortical-muscular pathway lesions at different levels: brain (precentral gyrus, radiant crown, inner capsule, brain stem), spinal cord (lateral cord, anterior horn), anterior root, plexus, peripheral nerve, neuromuscular synapse, muscle.  The structure of the spinal cord: shape and position, furrows and ropes of the spinal cord, gray and white matter, the structure of the ropes of the spinal cord, posterior and anterior roots, the concept of a segment of the spinal cord, the ratio of segments of the spinal cord and vertebrae, spinal nodes, plexuses. The general principle of the formation of nerves of the limbs and trunk. Defeat of the gray matter. The threshold of the white matter. Symptom complexes of the lesion at different levels: upper neck, cervical thickening, thoracic, lumbar thickening, conus medullaris, ponytail.  Know the basics and features of the organization of arbitrary movement;  Determine the mechanisms of development of damage to the cortical-muscular pathway, in particular the spinal cord;  Apply physical examination skills in case of damage to the nervous system;  Interpret and generalize the data of physical and laboratory-instrumental examination obtained during the examination of the patient - UAC, OAM, BAC, coagulogram, CSF examination, CT, MRI.  Identify syndromes - central and peripheral paresis; formulate a clinical diagnosis;  To build treatment tactics for lesions of the cortico-muscular pathway, spinal cord - hormonal therapy, anti-inflammatory therapy, anti-edematous therapy;  Improve interpersonal communication and patient counseling skills;  Descending tracts of central nervous system (Pyramidal): <https://geekymedics.com/the-descending-tracts-of-the-central-nervous-system/> Upper Motor Neuron vs Lower Motor Neuron Lesion: <https://www.youtube.com/watch?v=lwTeoVZPuJM>Motor Neuron Disease: <https://www.youtube.com/watch?v=rxYSw6Xxgfs&list=PLJIs8ZcKXHUx4C9zjinQ8NY0JetieXFl0&index=43> Muscle power assessment (MRC Scale): <https://geekymedics.com/muscle-power-assessment-mrc-scale/> Muscle power test of the upper limbs: <https://www.youtube.com/watch?v=KZoQ2UkMFTA>Muscle power test of the lower limbs: <https://www.youtube.com/watch?v=Cjt0iFt2hL8>Active movements upper and lower limbs: <https://www.youtube.com/watch?v=JNN1736I5a0>Plantar reflex or Babinski sign: <https://www.youtube.com/watch?v=DkMN6u6Hcts> Gait abnormalities: <https://geekymedics.com/gait-abnormalities/> Upper Motor Neuron vs Lower Motor Neuron Lesion: <https://www.youtube.com/watch?v=lwTeoVZPuJM>Cremasteric reflex: <https://www.youtube.com/watch?v=eVvInQNyXIU>Abdominal reflex: <https://www.youtube.com/watch?v=v4FyZydgHs0>Clonus: <https://www.youtube.com/watch?v=A67Od2Z_TpQ> Dermatomes and myotomes: <https://geekymedics.com/dermatomes-and-myotomes/> | 1. Гусев Е.И., Коновалов А.Н., Бурд Г.С. «Неврология и нейрохирургия», учебник. Издательство «Медицина» ISBN 5-225-00969-7  2. Нервные болезни : учебн. пособие / А.А.Скоромец, А.П.Скоромец, Т.А.Скоромец; под ред. проф. А.В.Амелина, проф. Е.Р.Баранцевича. – 10-е изд., доп. – М. : МЕДпресс-информ, 2017. – 568 с. : ил. ISBN 978-5-00030-441-9  3. Bähr, M., & Frotscher, M. (2019). Duus' topical diagnosis in neurology: Anatomy, physiology, signs, symptoms.  4. Ropper, A. H., Samuels, M. A., & Klein, J. (2014). Adams and Victor's principles of neurology.  5. In Daroff, R. B., In Jankovic, J., In Mazziotta, J. C., In Pomeroy, S. L., & Bradley, W. G. (2016). Bradley's neurology in clinical practice.  6. Manji, H., Connolly, S., Kitchen, N., Lambert, C., & Mehta, A. (2014-10). Oxford Handbook of Neurology. Oxford, UK: Oxford University Press. Retrieved 17 Aug. 2021, from https://oxfordmedicine.com/view/10.1093/med/9780199601172.001.0001/med-9780199601172.  7. In Innes, J. A., In Dover, A. R., In Fairhurst, K., Britton, R., & Danielson, E. (2018). Macleod's clinical examination.  8. Bickley, L. S., Szilagyi, P. G., & In Hoffman, R. M. (2017). Bates' guide to physical examination and history taking.  9. Практикалық неврология: оқулық/ С.У.Каменова, К.К. Кужыбаева, А.М. Кондыбаева, Б.Е.Кенжеахметова – Алматы, 2021.- 100 бет  **Internet resources:**  1. Medscape.com  2. Oxfordmedicine.com  3. Uptodate.com |
| 4 | Movement. Peripheral components of the motor system and clinical syndromes of lesions affecting them | The cervical plexus. The brachial plexus. Lesions of the roots and primary trunks. Damage to the nerves of the brachial plexus (axillary nerve, musculoskeletal nerve. radial nerve, ulnar nerve, median nerve, cutaneous internal nerve of the shoulder, conch internal nerve of the forearm). Lesions of the thoracic nerves.  Lumbar plexus. Lesions of the nerves of the lumbar plexus (femoral nerve, obturator nerve, external cutaneous nerve of the thigh, femoral genital nerve). Sacral plexus. Lesions of the nerves of the sacral plexus (sciatic nerves, peroneal nerve, tibial nerve, superior gluteal nerve, inferior gluteal nerve, posterior cutaneous nerve of the thigh).  Know the peripheral components of the motor system (cervical, brachial, lumbar, sacral plexuses and nerves that make up them)  To determine the mechanisms of development of damage to the spinal roots, plexuses and nerves.  Apply physical examination skills in case of damage to the nervous system;  Interpret, summarize the data obtained during the examination of the patient, physical and laboratory-instrumental examination - complete blood count, biochemical blood test, MRI, electroneuromyography.  Identify syndromes - radicular, tunnel, polyneuropathic; formulate a topical, clinical diagnosis;  To build treatment tactics for lesions of the peripheral nervous system  Demonstrate interpersonal communication and patient counseling skills;  Anatomy of brachial plexus: <https://geekymedics.com/brachial-plexus/>  Straight leg raise test - Lasègue's sign: <https://www.youtube.com/watch?v=ZSHDCyIvr7o> | 1. Гусев Е.И., Коновалов А.Н., Бурд Г.С. «Неврология и нейрохирургия», учебник. Издательство «Медицина» ISBN 5-225-00969-7  2. Нервные болезни : учебн. пособие / А.А.Скоромец, А.П.Скоромец, Т.А.Скоромец; под ред. проф. А.В.Амелина, проф. Е.Р.Баранцевича. – 10-е изд., доп. – М. : МЕДпресс-информ, 2017. – 568 с. : ил. ISBN 978-5-00030-441-9  3. Bähr, M., & Frotscher, M. (2019). Duus' topical diagnosis in neurology: Anatomy, physiology, signs, symptoms.  4. Ropper, A. H., Samuels, M. A., & Klein, J. (2014). Adams and Victor's principles of neurology.  5. In Daroff, R. B., In Jankovic, J., In Mazziotta, J. C., In Pomeroy, S. L., & Bradley, W. G. (2016). Bradley's neurology in clinical practice.  6. Manji, H., Connolly, S., Kitchen, N., Lambert, C., & Mehta, A. (2014-10). Oxford Handbook of Neurology. Oxford, UK: Oxford University Press. Retrieved 17 Aug. 2021, from https://oxfordmedicine.com/view/10.1093/med/9780199601172.001.0001/med-9780199601172.  7. In Innes, J. A., In Dover, A. R., In Fairhurst, K., Britton, R., & Danielson, E. (2018). Macleod's clinical examination.  8. Bickley, L. S., Szilagyi, P. G., & In Hoffman, R. M. (2017). Bates' guide to physical examination and history taking.  9. Практикалық неврология: оқулық/ С.У.Каменова, К.К. Кужыбаева, А.М. Кондыбаева, Б.Е.Кенжеахметова – Алматы, 2021.- 100 бет  **Internet resources:**  1. Medscape.com  2. Oxfordmedicine.com  3. Uptodate.com |
| 5 | The cerebellum and the extrapyramidal system | The structure and main connections of the extrapyramidal system, the role in the organization of movements; participation in the organization of movements by providing posture, muscle tone and stereotyped automated movements. Neurophysiological and neurochemical mechanisms of regulation of the extrapyramidal system activity. The main neurotransmitters are dopamine, acetylcholine, gamma-aminobutyric acid.  Hypokinesia (oligo-and bradykinesia), rigidity and muscle hypotension. Hyperkinesis: tremor, muscular dystopia, chorea, tics, hemiballism, athetosis, myoclonia. Hypotonic-hyperkinetic and hypertonic-hypokinetic syndromes. Neuropathophysiology of extrapyramidal motor disorders, methods of pharmacological correction.  Anatomical and physiological data: cerebellum and vestibular system: anatomy and physiology, afferent and efferent connections, the role in the organization of movements. Clinical methods of studying the coordination of movements. Symptoms and syndromes of cerebellar damage: ataxia, dissinergia, nystagmus, dysarthria, muscle hypotension. Ataxia: cerebellar, vestibular, frontal, sensitive. Pathophysiology and pharmacological methods of correction.  The descending tracts of the CNS (extrapiramidal): <https://geekymedics.com/the-descending-tracts-of-the-central-nervous-system/>  Anatomy of cerebellum: <https://geekymedics.com/cerebellum/>  Parkinsons disease examination OSCE guide: <https://geekymedics.com/parkinsons-disease-examination-osce-guide/>  Cerebellar examination OSCE guide: <https://geekymedics.com/cerebellar-examination-osce-guide/>  **Rombergs test/sign:** [**https://www.youtube.com/watch?v=H8VbKdRS-hg**](https://www.youtube.com/watch?v=H8VbKdRS-hg) | 1. Гусев Е.И., Коновалов А.Н., Бурд Г.С. «Неврология и нейрохирургия», учебник. Издательство «Медицина» ISBN 5-225-00969-7  2. Нервные болезни : учебн. пособие / А.А.Скоромец, А.П.Скоромец, Т.А.Скоромец; под ред. проф. А.В.Амелина, проф. Е.Р.Баранцевича. – 10-е изд., доп. – М. : МЕДпресс-информ, 2017. – 568 с. : ил. ISBN 978-5-00030-441-9  3. Bähr, M., & Frotscher, M. (2019). Duus' topical diagnosis in neurology: Anatomy, physiology, signs, symptoms.  4. Ropper, A. H., Samuels, M. A., & Klein, J. (2014). Adams and Victor's principles of neurology.  5. In Daroff, R. B., In Jankovic, J., In Mazziotta, J. C., In Pomeroy, S. L., & Bradley, W. G. (2016). Bradley's neurology in clinical practice.  6. Manji, H., Connolly, S., Kitchen, N., Lambert, C., & Mehta, A. (2014-10). Oxford Handbook of Neurology. Oxford, UK: Oxford University Press. Retrieved 17 Aug. 2021, from https://oxfordmedicine.com/view/10.1093/med/9780199601172.001.0001/med-9780199601172.  7. In Innes, J. A., In Dover, A. R., In Fairhurst, K., Britton, R., & Danielson, E. (2018). Macleod's clinical examination.  8. Bickley, L. S., Szilagyi, P. G., & In Hoffman, R. M. (2017). Bates' guide to physical examination and history taking.  9. Практикалық неврология: оқулық/ С.У.Каменова, К.К. Кужыбаева, А.М. Кондыбаева, Б.Е.Кенжеахметова – Алматы, 2021.- 100 бет  **Internet resources:**  1. Medscape.com  2. Oxfordmedicine.com  3. Uptodate.com |
| 6 | **BLOCK 2** |  |  |
| 7 | Brain stem and cranial nerves. I, II, III, IV, V, VI cranial nerves. Brain stem damage. Trigeminal neuralgia | Gray matter of the brain stem. Brain stem conductors (descending and ascending pathways). Cross-sections of the brain stem. The boundaries of the medulla oblongata and spinal cord (section I). The lower part of the medulla oblongata (section II). The upper part of the medulla oblongata (section III). The border of the medulla oblongata and the bridge (section IV). The middle third of the bridge (section V). The front third of the bridge (section VI). The legs of the brain and the anterior tubercles of the quadrilateral (sections VII) Brain stem damage syndromes at various levels, alternating syndromes.  Cranial nerves: anatomical and physiological data, clinical research methods and symptoms of the lesion.  I pair-olfactory nerve and olfactory system; symptoms and syndromes of the lesion.  II pair — the optic nerve and the visual system, signs of damage to the visual system at different levels (retina, optic nerve, intersection, visual tract, visual tubercle, visual radiance, cortex). Neuro-ophthalmological and paraclinical methods of studying the visual system (fundus examination, visual evoked potentials).  III, IV, VI pairs — oculomotor, block, diverting nerves and oculomotor system; symptoms of the lesion; medial longitudinal bundle and internuclear ophthalmoplegia; gaze regulation, cortical and stem paresis of the gaze; oculocephalic reflex; pupillary reflex and signs of its lesion; types and causes of anisocoria; Argyle Robertson syndrome, Eidy syndrome.  V pair-trigeminal nerve, syndromes of sensitivity disorders (peripheral, nuclear, stem and hemispheric); chewing disorders.  Know the anatomical and physiological data of the brain stem, cranial nerves.  Determine the mechanisms of development of lesions of the brain stem;  Apply the skills of a physical examination in case of lesions of craniocerebral insufficiency and brain stem;  Determine the mechanisms of development of lesions of I, II, III, IV, V, VI pairs of cranial nerves;  To train to carry out clinical methods of research and symptoms of the lesion.  To teach typical complaints and anamnesis of a patient with lesions of cranial nerves I, II, III, IV, V, VI pairs.  To teach technically correctly and systematically to conduct a physical examination to identify symptoms of damage to the cranial nerves of I, II, III, IV, V, VI pairs and possible causes that caused it.  To teach laboratory and instrumental diagnostic criteria for trigeminal neuralgia, cortical and stem gaze paresis.  To teach the differential diagnosis of the main focal symptoms and syndromes (syndrome of the defeat of the first pair, Argyle Robertson's syndrome, Adie's syndrome).  To teach how to interpret and summarize the data obtained during the examination of the patient, physical and laboratory-instrumental examination - UAC, OAM, BAC, coagulogram, CT, MRI.  To teach how to build treatment tactics for lesions of I, II, III, IV, V, VI pairs of craniocerebral insufficiency - hormonal therapy, anti-inflammatory therapy, decongestant therapy, vestibular gymnastics;  Improve interpersonal communication and patient counseling skills;  Brain stem anatomy: <https://www.youtube.com/watch?v=HYDfhoMun0I>  Midbrain Lesions: Benedikt, Weber, Claude, Parinaud Syndrome: <https://www.youtube.com/watch?v=t47ZbHh3Ytg> Olfactory System: Anatomy and Physiology, Pathways: <https://www.youtube.com/watch?v=wQJbsOWc344&list=PLJIs8ZcKXHUx4C9zjinQ8NY0JetieXFl0&index=53>The Optic Nerve (CN II): <https://geekymedics.com/the-optic-nerve-cn-2/> Extraocular muscles: <https://geekymedics.com/extraocular-muscles/>  Eye examination OSCE guide: <https://geekymedics.com/eye-examination-osce-guide/>  Colour vision assessment OSCE guide/: <https://geekymedics.com/colour-vision-assessment-osce-guide/>  Fundoscopy ophthalmoscopy OSCE guide: <https://geekymedics.com/fundoscopy-ophthalmoscopy-osce-guide/>  Visual pathway and visual field defects: <https://geekymedics.com/visual-pathway-and-visual-field-defects/> Olfactory nerve examination: <https://www.youtube.com/watch?v=uF5KXrlSrjs>Optic nerve examination: <https://www.youtube.com/watch?v=VB94tYqsIJI>Occulomotor, Troclear and Abduscent examination: <https://www.youtube.com/watch?v=Drpn_E1wmLI>Trigeminal nerve examination: <https://www.youtube.com/watch?v=7_REH6ZycUk> | 1. Гусев Е.И., Коновалов А.Н., Бурд Г.С. «Неврология и нейрохирургия», учебник. Издательство «Медицина» ISBN 5-225-00969-7  2. Нервные болезни : учебн. пособие / А.А.Скоромец, А.П.Скоромец, Т.А.Скоромец; под ред. проф. А.В.Амелина, проф. Е.Р.Баранцевича. – 10-е изд., доп. – М. : МЕДпресс-информ, 2017. – 568 с. : ил. ISBN 978-5-00030-441-9  3. Bähr, M., & Frotscher, M. (2019). Duus' topical diagnosis in neurology: Anatomy, physiology, signs, symptoms.  4. Ropper, A. H., Samuels, M. A., & Klein, J. (2014). Adams and Victor's principles of neurology.  5. In Daroff, R. B., In Jankovic, J., In Mazziotta, J. C., In Pomeroy, S. L., & Bradley, W. G. (2016). Bradley's neurology in clinical practice.  6. Manji, H., Connolly, S., Kitchen, N., Lambert, C., & Mehta, A. (2014-10). Oxford Handbook of Neurology. Oxford, UK: Oxford University Press. Retrieved 17 Aug. 2021, from https://oxfordmedicine.com/view/10.1093/med/9780199601172.001.0001/med-9780199601172.  7. In Innes, J. A., In Dover, A. R., In Fairhurst, K., Britton, R., & Danielson, E. (2018). Macleod's clinical examination.  8. Bickley, L. S., Szilagyi, P. G., & In Hoffman, R. M. (2017). Bates' guide to physical examination and history taking.  9. Практикалық неврология: оқулық/ С.У.Каменова, К.К. Кужыбаева, А.М. Кондыбаева, Б.Е.Кенжеахметова – Алматы, 2021.- 100 бет  **Internet resources:**  1. Medscape.com  2. Oxfordmedicine.com  3. Uptodate.com |
| 8 | VII and VIII cranial nerves. Facial neuropathy | Cranial nerves: anatomical and physiological data, clinical research methods and symptoms of the lesion. VII pair-facial nerve, central and peripheral paresis of facial muscles, clinic of facial nerve damage at different levels. Taste and its disorders.  VIII pair — vestibular-cochlear nerve, auditory and vestibular systems; the role of the vestibular apparatus in the regulation of coordination of movements, balance and posture; signs of damage at different levels; nystagmus, vestibular vertigo, vestibular ataxia, Meniere's syndrome. Otoneurological methods of studying vestibular function.  Determine the mechanisms of development of lesions of the VII and VIII pairs of cranial nerves;  Apply physical examination skills in case of damage to the nervous system;  Interpret and summarize the data of physical and laboratory-instrumental examination obtained during the examination of the patient - UAC, OAM, BAC, coagulogram, CT, MRI, audiogram.  Identify syndromes - cerebral, focal; formulate a clinical diagnosis;  To build treatment tactics for lesions of the VII and VIII pairs of craniocerebral insufficiency - hormonal therapy, anti-inflammatory therapy, decongestant therapy, vestibular gymnastics;  Improve interpersonal communication and patient counseling skills; Facial nerve examination: <https://www.youtube.com/watch?v=M4kAQ6V6axs>Bell's Palsy: <https://www.youtube.com/watch?v=5KUbnVeMYEo&list=PLJIs8ZcKXHUx4C9zjinQ8NY0JetieXFl0&index=37>The Vestibulocochlear Nerve (CN VIII):<https://geekymedics.com/the-vestibulocochlear-nerve-cn-viii/>The Head Impulse, Nystagmus, Test of Skew (HINTS) Examination:<https://geekymedics.com/the-head-impulse-nystagmus-test-of-skew-hints-examination/>Vestibulocochlear nerve examination: <https://www.youtube.com/watch?v=AU_mZAPNFjQ> | 1. Гусев Е.И., Коновалов А.Н., Бурд Г.С. «Неврология и нейрохирургия», учебник. Издательство «Медицина» ISBN 5-225-00969-7  2. Нервные болезни : учебн. пособие / А.А.Скоромец, А.П.Скоромец, Т.А.Скоромец; под ред. проф. А.В.Амелина, проф. Е.Р.Баранцевича. – 10-е изд., доп. – М. : МЕДпресс-информ, 2017. – 568 с. : ил. ISBN 978-5-00030-441-9  3. Bähr, M., & Frotscher, M. (2019). Duus' topical diagnosis in neurology: Anatomy, physiology, signs, symptoms.  4. Ropper, A. H., Samuels, M. A., & Klein, J. (2014). Adams and Victor's principles of neurology.  5. In Daroff, R. B., In Jankovic, J., In Mazziotta, J. C., In Pomeroy, S. L., & Bradley, W. G. (2016). Bradley's neurology in clinical practice.  6. Manji, H., Connolly, S., Kitchen, N., Lambert, C., & Mehta, A. (2014-10). Oxford Handbook of Neurology. Oxford, UK: Oxford University Press. Retrieved 17 Aug. 2021, from https://oxfordmedicine.com/view/10.1093/med/9780199601172.001.0001/med-9780199601172.  7. In Innes, J. A., In Dover, A. R., In Fairhurst, K., Britton, R., & Danielson, E. (2018). Macleod's clinical examination.  8. Bickley, L. S., Szilagyi, P. G., & In Hoffman, R. M. (2017). Bates' guide to physical examination and history taking.  9. Практикалық неврология: оқулық/ С.У.Каменова, К.К. Кужыбаева, А.М. Кондыбаева, Б.Е.Кенжеахметова – Алматы, 2021.- 100 бет  **Internet resources:**  1. Medscape.com  2. Oxfordmedicine.com  3. Uptodate.com |
| 9 | IX, X, XI, XII cranial nerves. Bulbar and pseudobulbar syndromes | Cranial nerves: anatomical and physiological data, clinical research methods and symptoms of the lesion.  IX and X pairs — lingual and vagus nerves, autonomic functions of the vagus nerve; signs of damage at different levels, bulbar and pseudobulbar syndromes.  XI pair-accessory nerve, signs of damage.  XII pair- hypoglossal nerve, signs of damage; central and peripheral paresis of the tongue.  Anatomy of the glossopharyngeal nerve: <https://geekymedics.com/the-glossopharyngeal-nerve-cn-ix/> Swallowing Reflex: <https://www.youtube.com/watch?v=YQm5RCz9Pxc&list=PLJIs8ZcKXHUx4C9zjinQ8NY0JetieXFl0&index=34>Dysphagia: <https://www.youtube.com/watch?v=VoSMA2Anq3U>Glossopharyngeal, Vagus, Hypoglossal nerves examination: <https://www.youtube.com/watch?v=sMZbsci3BM4>Accessory nerve examination: <https://www.youtube.com/watch?v=K_QqV9HZJnQ> | 1. Гусев Е.И., Коновалов А.Н., Бурд Г.С. «Неврология и нейрохирургия», учебник. Издательство «Медицина» ISBN 5-225-00969-7  2. Нервные болезни : учебн. пособие / А.А.Скоромец, А.П.Скоромец, Т.А.Скоромец; под ред. проф. А.В.Амелина, проф. Е.Р.Баранцевича. – 10-е изд., доп. – М. : МЕДпресс-информ, 2017. – 568 с. : ил. ISBN 978-5-00030-441-9  3. Bähr, M., & Frotscher, M. (2019). Duus' topical diagnosis in neurology: Anatomy, physiology, signs, symptoms.  4. Ropper, A. H., Samuels, M. A., & Klein, J. (2014). Adams and Victor's principles of neurology.  5. In Daroff, R. B., In Jankovic, J., In Mazziotta, J. C., In Pomeroy, S. L., & Bradley, W. G. (2016). Bradley's neurology in clinical practice.  6. Manji, H., Connolly, S., Kitchen, N., Lambert, C., & Mehta, A. (2014-10). Oxford Handbook of Neurology. Oxford, UK: Oxford University Press. Retrieved 17 Aug. 2021, from https://oxfordmedicine.com/view/10.1093/med/9780199601172.001.0001/med-9780199601172.  7. In Innes, J. A., In Dover, A. R., In Fairhurst, K., Britton, R., & Danielson, E. (2018). Macleod's clinical examination.  8. Bickley, L. S., Szilagyi, P. G., & In Hoffman, R. M. (2017). Bates' guide to physical examination and history taking.  9. Практикалық неврология: оқулық/ С.У.Каменова, К.К. Кужыбаева, А.М. Кондыбаева, Б.Е.Кенжеахметова – Алматы, 2021.- 100 бет  **Internet resources:**  1. Medscape.com  2. Oxfordmedicine.com  3. Uptodate.com |
| 10 | Autonomic nervous system. Autonomic innervation and functional disturbances of individual organs. ANS assessment methods | The structure and functions of the autonomic nervous system: sympathetic and parasympathetic systems; peripheral (segmental) and central parts of the autonomic nervous system. Limbic-hypothalamic-reticular complex. Symptoms and syndromes of damage to the peripheral part of the autonomic nervous system: peripheral autonomic insufficiency, Raynaud's syndrome. The physiology of arbitrary control of the functions of the bladder. Neurogenic bladder, urinary retention and incontinence, imperative urge to urinate. Signs of central and peripheral disorders of the bladder functions. Instrumental and drug correction of peripheral autonomic disorders and neurogenic bladder.  Examination of a patient with syndromes of disorders of the autonomic nervous system  Be able to measure vital signs with samples to identify the functionality of autonomic innervation (assessment of blood pressure, heart rate, pulse, respiratory rate).  Be able to isolate dysregulation of the autonomic nervous system when interviewing a patient  Be able to conduct a general physical and neurological examination with an emphasis on the functions of the autonomic nervous system.  To be able to conduct a survey of a patient with urinary disorders (adult and child) in an ethical manner.  Be able to prescribe the necessary examination for a patient with urination disorders  To know the main drugs and methods of treatment for various types of urination disorders. Autonomic Nervous System: <https://www.youtube.com/watch?v=D96mSg2_h0c&list=PLJIs8ZcKXHUx4C9zjinQ8NY0JetieXFl0&index=6>Neural Control of Urination: <https://www.youtube.com/watch?v=US0vNoxsW-k&list=PLJIs8ZcKXHUx4C9zjinQ8NY0JetieXFl0&index=35> | 1. Гусев Е.И., Коновалов А.Н., Бурд Г.С. «Неврология и нейрохирургия», учебник. Издательство «Медицина» ISBN 5-225-00969-7  2. Нервные болезни : учебн. пособие / А.А.Скоромец, А.П.Скоромец, Т.А.Скоромец; под ред. проф. А.В.Амелина, проф. Е.Р.Баранцевича. – 10-е изд., доп. – М. : МЕДпресс-информ, 2017. – 568 с. : ил. ISBN 978-5-00030-441-9  3. Bähr, M., & Frotscher, M. (2019). Duus' topical diagnosis in neurology: Anatomy, physiology, signs, symptoms.  4. Ropper, A. H., Samuels, M. A., & Klein, J. (2014). Adams and Victor's principles of neurology.  5. In Daroff, R. B., In Jankovic, J., In Mazziotta, J. C., In Pomeroy, S. L., & Bradley, W. G. (2016). Bradley's neurology in clinical practice.  6. Manji, H., Connolly, S., Kitchen, N., Lambert, C., & Mehta, A. (2014-10). Oxford Handbook of Neurology. Oxford, UK: Oxford University Press. Retrieved 17 Aug. 2021, from https://oxfordmedicine.com/view/10.1093/med/9780199601172.001.0001/med-9780199601172.  7. In Innes, J. A., In Dover, A. R., In Fairhurst, K., Britton, R., & Danielson, E. (2018). Macleod's clinical examination.  8. Bickley, L. S., Szilagyi, P. G., & In Hoffman, R. M. (2017). Bates' guide to physical examination and history taking.  9. Практикалық неврология: оқулық/ С.У.Каменова, К.К. Кужыбаева, А.М. Кондыбаева, Б.Е.Кенжеахметова – Алматы, 2021.- 100 бет  **Internet resources:**  1. Medscape.com  2. Oxfordmedicine.com  3. Uptodate.com |
| 11 | Higher cortical functions and their impairment by cortical lesions. Assessment methods. Coverings of the brain and spinal cord; cerebrospinal fluid and ventricular system | The cerebral cortex: basic principles of structure and function, the problem of localization of functions in the brain. Functional asymmetry of the cerebral hemispheres. The concept of the systemic organization of mental functions. Higher cerebral (mental) functions: gnosis, praxis, speech, reading, writing, counting, memory, attention, intelligence and their disorders; aphasia (motor, sensory, amnestic, semantic); apraxia (constructive, spatial, ideomotor); agnosia (visual, auditory, olfactory); astereotnosis, anosognosia, autotopagnosia; dysmnestic syndrome, Korsakov’s syndrome; dementia, mental retardation. The importance of neuropsychological research in the neurological clinic. Syndromes of damage to the frontal, temporal, temporal and occipital lobes of the brain, Psychomotor and speech development of the child, the rate of speech development, delayed speech functions (alalia, dyslalia, dysgraphia, dyslexia).  To be able to examine a patient with syndromes of impaired higher nervous function;  Be able to assess and interpret the patient's level of consciousness on the Glasgow Coma Scale;  be able to assess the patient's speech when collecting an anamnesis:  Purposeful physical and general neurological examination to exclude other (except for neurological and mental disorders) causes of speech impairment.  be able to conduct targeted questioning of the patient in identifying speech disorders, to differentiate between different types of aphasia, dysarthria, dysphonia.  conducting a purposeful physical and general neurological examination in order to exclude other (except for neurological and mental disorders) if the patient is mistaken or does not recognize - he cannot correctly name objects, people / parts of his body.  Conduct a targeted questioning of the patient when identifying signs of agnosia, to differentiate between different types of agnosia:  Conducting a purposeful physical and general neurological examination to exclude other (except for neurological and mental disorders) reasons if the patient cannot perform some action;  conduct targeted questioning of the patient in identifying signs of apraxia, to differentiate between different types of apraxia.  Perform simple tests to detect impaired cognitive function - MiniMental Status Test  Localize the affected area (frontal, parietal, temporal or occipital lobe), is able to make a syndromic diagnosis.  Assess normal speech development in a healthy child from birth. Cerebral Cortex Anatomy & Function: <https://www.youtube.com/watch?v=2LzZMWGQe1k>Neurological examination; higher brain functions: <https://www.youtube.com/watch?v=k0cph9PAFGQ> | 1. Гусев Е.И., Коновалов А.Н., Бурд Г.С. «Неврология и нейрохирургия», учебник. Издательство «Медицина» ISBN 5-225-00969-7  2. Нервные болезни : учебн. Пособие / А.А.Скоромец, А.П.Скоромец, Т.А.Скоромец; под ред. Проф. А.В.Амелина, проф. Е.Р.Баранцевича. – 10-е изд., доп. – М. : МЕДпресс-информ, 2017. – 568 с. : ил. ISBN 978-5-00030-441-9  3. Bähr, M., & Frotscher, M. (2019). Duus' topical diagnosis in neurology: Anatomy, physiology, signs, symptoms.  4. Ropper, A. H., Samuels, M. A., & Klein, J. (2014). Adams and Victor's principles of neurology.  5. In Daroff, R. B., In Jankovic, J., In Mazziotta, J. C., In Pomeroy, S. L., & Bradley, W. G. (2016). Bradley's neurology in clinical practice.  6. Manji, H., Connolly, S., Kitchen, N., Lambert, C., & Mehta, A. (2014-10). Oxford Handbook of Neurology. Oxford, UK: Oxford University Press. Retrieved 17 Aug. 2021, from <https://oxfordmedicine.com/view/10.1093/med/9780199601172.001.0001/med-9780199601172>.  7. In Innes, J. A., In Dover, A. R., In Fairhurst, K., Britton, R., & Danielson, E. (2018). Macleod's clinical examination.  8. Bickley, L. S., Szilagyi, P. G., & In Hoffman, R. M. (2017). Bates' guide to physical examination and history taking.  9. Практикалық неврология: оқулық/ С.У.Каменова, К.К. Кужыбаева, А.М. Кондыбаева, Б.Е.Кенжеахметова – Алматы, 2021.- 100 бет  **Internet resources:**  1. Medscape.com  2. Oxfordmedicine.com  3. Uptodate.com |
| 12 | **BLOCK 3** |  |  |
| 13 | Cerebrovascular diseases. | Classification of vascular diseases of the brain. Etiology of vascular diseases of the brain. Pathophysiology of cerebral circulation in case of blockage of cerebral arteries and arterial hypertension. The primary symptoms of FAST, BEFAST. Transient cerebrovascular accident (transient ischemic attack) and ischemic stroke: ethnology, pathogenesis, clinic, diagnosis. Thrombolytic therapy, mechanism of action, pharmacokinetics, side effects, indications and contraindications. Brain hemorrhage: etiology, pathogenesis, clinic, diagnosis, therapy and indications for surgical treatment. Subarachnoid non-traumatic hemorrhage: etiology, pathogenesis, clinic. diagnostics. therapy and indications for surgical treatment. Paraclinical methods for the diagnosis of acute disorders of cerebral circulation — CT and MRI, ultrasound Dopplerography, ultrasound duplex and triplex scanning, transcranial Dopplerography, angiography. Rehabilitation of patients who have suffered a stroke. Surgical treatment of vascular lesions of the brain, indications and principles of surgical interventions for cerebral hemorrhage, brain aneurysm, stenoses and occlusions of the main arteries of the head. Primary and secondary prevention of stroke.  Determine the mechanisms of development of brain damage in cerebrovascular diseases (transient ischemic attack, ischemic stroke, hemorrhagic stroke, subarachnoid hemorrhage);  Apply physical examination skills in case of damage to the nervous system;  Interpret, generalize the data obtained during the examination of the patient, physical and laboratory-instrumental examination - UAC, BAC, coagulogram, CT, MRI, Duplex BCA  Identify syndromes - cerebral, focal; formulates a topical, clinical diagnosis;  To build treatment tactics for ischemic and hemorrhagic strokes -  thrombolytic therapy, nootropic therapy;  Improve interpersonal communication and patient counseling skills;  Arterial supply of the brain: 1. <https://geekymedics.com/arterial-supply-of-the-brain/>  2. <https://www.youtube.com/watch?v=CaOPBuP3VkA&list=WL&index=1&t=40s> Ischemic Stroke - causes, symptoms, diagnosis, treatment, pathology: <https://www.youtube.com/watch?v=2IgFri0B85Q&list=WL&index=2>  Arteriovenous malformation (AVM) and Embolization Treatment: <https://www.youtube.com/watch?v=gYTVA3PoeY8&list=PLJIs8ZcKXHUx4C9zjinQ8NY0JetieXFl0&index=51> Stroke and TIA history taking: <https://geekymedics.com/stroke-and-tia-history-taking/>  CT head interpretation: <https://geekymedics.com/ct-head-interpretation/>  The basics of MRI interpretation: <https://geekymedics.com/the-basics-of-mri-interpretation/> Language Pathways and Aphasia: <https://www.youtube.com/watch?v=DwVfCjbIJQI&list=PLJIs8ZcKXHUx4C9zjinQ8NY0JetieXFl0&index=20> | 1. Гусев Е.И., Коновалов А.Н., Бурд Г.С. «Неврология и нейрохирургия», учебник. Издательство «Медицина» ISBN 5-225-00969-7  2. Нервные болезни : учебн. пособие / А.А.Скоромец, А.П.Скоромец, Т.А.Скоромец; под ред. проф. А.В.Амелина, проф. Е.Р.Баранцевича. – 10-е изд., доп. – М. : МЕДпресс-информ, 2017. – 568 с. : ил. ISBN 978-5-00030-441-9  3. Bähr, M., & Frotscher, M. (2019). Duus' topical diagnosis in neurology: Anatomy, physiology, signs, symptoms.  4. Ropper, A. H., Samuels, M. A., & Klein, J. (2014). Adams and Victor's principles of neurology.  5. In Daroff, R. B., In Jankovic, J., In Mazziotta, J. C., In Pomeroy, S. L., & Bradley, W. G. (2016). Bradley's neurology in clinical practice.  6. Manji, H., Connolly, S., Kitchen, N., Lambert, C., & Mehta, A. (2014-10). Oxford Handbook of Neurology. Oxford, UK: Oxford University Press. Retrieved 17 Aug. 2021, from https://oxfordmedicine.com/view/10.1093/med/9780199601172.001.0001/med-9780199601172.  7. In Innes, J. A., In Dover, A. R., In Fairhurst, K., Britton, R., & Danielson, E. (2018). Macleod's clinical examination.  8. Bickley, L. S., Szilagyi, P. G., & In Hoffman, R. M. (2017). Bates' guide to physical examination and history taking.  9. Практикалық неврология: оқулық/ С.У.Каменова, К.К. Кужыбаева, А.М. Кондыбаева, Б.Е.Кенжеахметова – Алматы, 2021.- 100 бет  10. In Clark, M. A., In Finkel, R., In Rey, J. A., & In Whalen, K. (2012). *Pharmacology*.  **Internet resources:**  1. Medscape.com  2. Oxfordmedicine.com  3. Uptodate.com |
| 14 | Paroxysmal states in neurology. | Classification of epilepsy and epileptic seizures. Etiology and pathogenesis of epilepsy and epileptic syndrome. Treatment of epilepsy. Epileptic status: clinic, pathogenesis, treatment.  Features of the course of epilepsy in children, neonatal seizures, infantile spasms (West's syndrome), Lennox-Gastaut syndrome, febrile seizures, benign rolandic epilepsy; non-epileptic paroxysmal disorders in childhood (affective-respiratory attacks).  Paraclinical methods in the diagnosis of paroxysmal disorders of consciousness — electroencephalography, CT and MRI of the head.  Principles of prescribing antiepileptic drugs classification, mechanism of action, pharmacokinetics, side effects, indications and contraindications. Antidepressants classification, mechanism of action, pharmacokinetics, side effects, indications and contraindications. Epilepsy: Types of seizures, Symptoms, Pathophysiology, Causes and Treatments: <https://www.youtube.com/watch?v=RxgZJA625QQ> Transient loss consciousness history taking: <https://geekymedics.com/transient-loss-consciousness-history-taking/>  Explaining a diagnosis of epilepsy: <https://geekymedics.com/explaining-a-diagnosis-of-epilepsy/> GABA and Glutamate: <https://www.youtube.com/watch?v=wP9QD-5FL5U&list=PLJIs8ZcKXHUx4C9zjinQ8NY0JetieXFl0&index=22>GABA Receptors and GABA Drugs: <https://www.youtube.com/watch?v=MRr6Ov2Uyc4&list=PLJIs8ZcKXHUx4C9zjinQ8NY0JetieXFl0&index=23> | 1. Гусев Е.И., Коновалов А.Н., Бурд Г.С. «Неврология и нейрохирургия», учебник. Издательство «Медицина» ISBN 5-225-00969-7  2. Нервные болезни : учебн. пособие / А.А.Скоромец, А.П.Скоромец, Т.А.Скоромец; под ред. проф. А.В.Амелина, проф. Е.Р.Баранцевича. – 10-е изд., доп. – М. : МЕДпресс-информ, 2017. – 568 с. : ил. ISBN 978-5-00030-441-9  3. Bähr, M., & Frotscher, M. (2019). Duus' topical diagnosis in neurology: Anatomy, physiology, signs, symptoms.  4. Ropper, A. H., Samuels, M. A., & Klein, J. (2014). Adams and Victor's principles of neurology.  5. In Daroff, R. B., In Jankovic, J., In Mazziotta, J. C., In Pomeroy, S. L., & Bradley, W. G. (2016). Bradley's neurology in clinical practice.  6. Manji, H., Connolly, S., Kitchen, N., Lambert, C., & Mehta, A. (2014-10). Oxford Handbook of Neurology. Oxford, UK: Oxford University Press. Retrieved 17 Aug. 2021, from https://oxfordmedicine.com/view/10.1093/med/9780199601172.001.0001/med-9780199601172.  7. In Innes, J. A., In Dover, A. R., In Fairhurst, K., Britton, R., & Danielson, E. (2018). Macleod's clinical examination.  8. Bickley, L. S., Szilagyi, P. G., & In Hoffman, R. M. (2017). Bates' guide to physical examination and history taking.  9. Практикалық неврология: оқулық/ С.У.Каменова, К.К. Кужыбаева, А.М. Кондыбаева, Б.Е.Кенжеахметова – Алматы, 2021.- 100 бет  10. In Clark, M. A., In Finkel, R., In Rey, J. A., & In Whalen, K. (2012). *Pharmacology*.  **Internet resources:**  1. Medscape.com  2. Oxfordmedicine.com  3. Uptodate.com |
| 15 | Injuries to the brain, spinal cord and peripheral nervous system. | Traumatic brain injury. Classification, clinic, diagnosis, treatment.  Concussion of the brain. Brain injury. Intracranial traumatic hematomas. Medical tactics.  The consequences of traumatic brain injury, syndromic manifestations and their treatment. Post-commotion syndrome.  Spinal cord injury: pathogenesis, clinic, diagnosis, medical tactics.  Neurosurgical treatment of traumatic lesions of the central nervous system.  Rehabilitation of patients with spinal injury. Anesthetics classification, mechanism of action, pharmacokinetics, side effects, indications and contraindications. Concussion: Pathophysiology, Causes, Symptoms and Treatment: <https://www.youtube.com/watch?v=sxh3z12kXjQ&list=PLJIs8ZcKXHUx4C9zjinQ8NY0JetieXFl0&index=43> Glasgow coma scale: <https://geekymedics.com/glasgow-coma-scale-gcs/> Traumatic brain injury: <https://www.youtube.com/watch?v=hssdJu-81g4> | 1. Гусев Е.И., Коновалов А.Н., Бурд Г.С. «Неврология и нейрохирургия», учебник. Издательство «Медицина» ISBN 5-225-00969-7  2. Нервные болезни : учебн. пособие / А.А.Скоромец, А.П.Скоромец, Т.А.Скоромец; под ред. проф. А.В.Амелина, проф. Е.Р.Баранцевича. – 10-е изд., доп. – М. : МЕДпресс-информ, 2017. – 568 с. : ил. ISBN 978-5-00030-441-9  3. Bähr, M., & Frotscher, M. (2019). Duus' topical diagnosis in neurology: Anatomy, physiology, signs, symptoms.  4. Ropper, A. H., Samuels, M. A., & Klein, J. (2014). Adams and Victor's principles of neurology.  5. In Daroff, R. B., In Jankovic, J., In Mazziotta, J. C., In Pomeroy, S. L., & Bradley, W. G. (2016). Bradley's neurology in clinical practice.  6. Manji, H., Connolly, S., Kitchen, N., Lambert, C., & Mehta, A. (2014-10). Oxford Handbook of Neurology. Oxford, UK: Oxford University Press. Retrieved 17 Aug. 2021, from https://oxfordmedicine.com/view/10.1093/med/9780199601172.001.0001/med-9780199601172.  7. In Innes, J. A., In Dover, A. R., In Fairhurst, K., Britton, R., & Danielson, E. (2018). Macleod's clinical examination.  8. Bickley, L. S., Szilagyi, P. G., & In Hoffman, R. M. (2017). Bates' guide to physical examination and history taking.  9. Практикалық неврология: оқулық/ С.У.Каменова, К.К. Кужыбаева, А.М. Кондыбаева, Б.Е.Кенжеахметова – Алматы, 2021.- 100 бет  10. In Clark, M. A., In Finkel, R., In Rey, J. A., & In Whalen, K. (2012). *Pharmacology*.  **Internet resources:**  1. Medscape.com  2. Oxfordmedicine.com  3. Uptodate.com |
| 16 | Infectious and inflammatory diseases of the nervous system | Meningitis: classification, ethnology, clinic, diagnosis, treatment.  Primary and secondary purulent meningitis: menigococcal, pneumococcal, caused by hemophilic bacillus. Serous meningitis: tuberculosis and viral meningitis. Meningeal syndrome: manifestations, diagnosis. Features of the course of purulent meningitis in newborns and young children. Encephalitis: classification, etiology, clinic, diagnosis, treatment.  Herpetic encephalitis. Tick-borne encephalitis. Parainfective encephalitis in measles, chickenpox, rubella. Rheumatic lesions of the nervous system, minor chorea.  Polio, features of the modern course of polio. Brain abscess, spinal epidural abscess. Shingles (herpes). Diphtheria polyneuropathy. Botulism. Neurosyphilis. Damage to the nervous system in AIDS.  Parainfective and postvaccial lesions of the nervous system. Lesions of the nervous system in intrauterine infections. post-vaccination encephalomyelitis. Congenital neurosyphilis.  Paraclinical methods in the diagnosis of infectious diseases of the nervous system: liquorological and serological studies, CT and MRI of the head. Features of pathogenetic treatment for meningitis, encephalitis, polio.  Determine the mechanisms of development of infectious and inflammatory diseases  nervous system;  Apply physical examination skills in case of damage to the nervous system;  Interpret and summarize the data obtained during the examination of the patient  physical and laboratory-instrumental examination - UAC, OAM, BAC,  coagulogram, CT, MRI.  To be able to carry out differential diagnostics of the main infectious and inflammatory diseases of the nervous system (meningitis, encephalitis, poliomyelitis, brain abscess, damage to the nervous system in AIDS)  Identify syndromes - cerebral, focal; formulate a clinical diagnosis;  Build treatment tactics for infectious and inflammatory diseases  nervous system - pathogenetic treatment: hormonal therapy, antiviral, antibacterial therapy, anti-inflammatory therapy, decongestant therapy;  Improve interpersonal communication and patient counseling skills;  Cerebrospinal fluid CSF interpretation: <https://geekymedics.com/cerebrospinal-fluid-csf-interpretation/>  Meningitis: <https://geekymedics.com/meningitis/>  Meningitis: <https://www.youtube.com/watch?v=gIHUJs2eTHA> Brudzinski’s sign, Meningeal stretch test: <https://www.youtube.com/watch?v=ke5EsXMXPHo>Kernig’s sign, Meningeal stretch test: <https://www.youtube.com/watch?v=euNPB3OjrdM> | 1. Гусев Е.И., Коновалов А.Н., Бурд Г.С. «Неврология и нейрохирургия», учебник. Издательство «Медицина» ISBN 5-225-00969-7  2. Нервные болезни : учебн. пособие / А.А.Скоромец, А.П.Скоромец, Т.А.Скоромец; под ред. проф. А.В.Амелина, проф. Е.Р.Баранцевича. – 10-е изд., доп. – М. : МЕДпресс-информ, 2017. – 568 с. : ил. ISBN 978-5-00030-441-9  3. Bähr, M., & Frotscher, M. (2019). Duus' topical diagnosis in neurology: Anatomy, physiology, signs, symptoms.  4. Ropper, A. H., Samuels, M. A., & Klein, J. (2014). Adams and Victor's principles of neurology.  5. In Daroff, R. B., In Jankovic, J., In Mazziotta, J. C., In Pomeroy, S. L., & Bradley, W. G. (2016). Bradley's neurology in clinical practice.  6. Manji, H., Connolly, S., Kitchen, N., Lambert, C., & Mehta, A. (2014-10). Oxford Handbook of Neurology. Oxford, UK: Oxford University Press. Retrieved 17 Aug. 2021, from https://oxfordmedicine.com/view/10.1093/med/9780199601172.001.0001/med-9780199601172.  7. In Innes, J. A., In Dover, A. R., In Fairhurst, K., Britton, R., & Danielson, E. (2018). Macleod's clinical examination.  8. Bickley, L. S., Szilagyi, P. G., & In Hoffman, R. M. (2017). Bates' guide to physical examination and history taking.  9. Практикалық неврология: оқулық/ С.У.Каменова, К.К. Кужыбаева, А.М. Кондыбаева, Б.Е.Кенжеахметова – Алматы, 2021.- 100 бет  10. In Clark, M. A., In Finkel, R., In Rey, J. A., & In Whalen, K. (2012). *Pharmacology*.  **Internet resources:**  1. Medscape.com  2. Oxfordmedicine.com  3. Uptodate.com |
| 17 | Hereditary degenerative diseases. Demyelinating diseases of nervous system | Degenerative diseases of the nervous system: Alzheimer's, Huntington's chorea, Parkinson's disease, amyotrophic lateral sclerosis. Etiology, pathogenesis, clinic, diagnosis. Antiparkinsonian drugs, classification, mechanism of action, pharmacokinetics, side effects, indications and contraindications. Drugs for the treatment of Alzheimer's, classification, mechanism of action, pharmacokinetics, side effects, indications and contraindications.  Multiple sclerosis: pathogenesis, clinic, diagnosis, types of course. Paraclinical research methods in the diagnosis of multiple sclerosis: MRI of the brain and spinal cord, the study of evoked potentials of the brain. Drugs that change the course of multiple sclerosis (first-and second-third-line PITRS) classification, mechanism of action, pharmacokinetics, side effects, indications and contraindications.  To determine the mechanisms of development of brain damage in degenerative, demyelinating diseases (Parkinson’s disease, Alzheimer’s disease, Huntington’s disease, multiple sclerosis);  To apply the skills of physical examination in case of damage to the nervous system;  To interpret, summarize the data of physical and laboratory-instrumental examination  obtained during the examination of the patient - general blood analysis, blood chemistry,  coagulogram, CT, MRI, duplex scanning of brachiocephalic arteries  To allocate syndromes - cerebral, bulbar, extrapyramidal, pyramidal, cognitive-mnestic;  formulates a topical, clinical diagnosis;  To build a treatment strategy for degenerative and demyelinating diseases of the central  nervous system - PMTRS, glucocorticosteroids, supportive, symptomatic therapy;  To demonstrate interpersonal communication and patient counseling skills;  Alzheimer's disease: <https://www.youtube.com/watch?v=v5gdH_Hydes>  Alzheimer's disease: <https://www.youtube.com/watch?v=ot90GJ1usrk&list=PLJIs8ZcKXHUx4C9zjinQ8NY0JetieXFl0&index=39> Huntington's Disease: <https://www.youtube.com/watch?v=M6Z9bkd7zF8&list=PLJIs8ZcKXHUx4C9zjinQ8NY0JetieXFl0&index=41> Multiple sclerosis: <https://geekymedics.com/multiple-sclerosis/>  Multiple sclerosis: <https://www.youtube.com/watch?v=yzH8ul5PSZ8> Parkinson's Disease | Clinical Presentation | Part 1 <https://www.youtube.com/watch?v=KWVJBg6SCoY>Parkinson's Disease | Causes & Pathophysiology | Part 2. <https://www.youtube.com/watch?v=rFoc4ACFehQ> | 1. Гусев Е.И., Коновалов А.Н., Бурд Г.С. «Неврология и нейрохирургия», учебник. Издательство «Медицина» ISBN 5-225-00969-7  2. Нервные болезни : учебн. пособие / А.А.Скоромец, А.П.Скоромец, Т.А.Скоромец; под ред. проф. А.В.Амелина, проф. Е.Р.Баранцевича. – 10-е изд., доп. – М. : МЕДпресс-информ, 2017. – 568 с. : ил. ISBN 978-5-00030-441-9  3. Bähr, M., & Frotscher, M. (2019). Duus' topical diagnosis in neurology: Anatomy, physiology, signs, symptoms.  4. Ropper, A. H., Samuels, M. A., & Klein, J. (2014). Adams and Victor's principles of neurology.  5. In Daroff, R. B., In Jankovic, J., In Mazziotta, J. C., In Pomeroy, S. L., & Bradley, W. G. (2016). Bradley's neurology in clinical practice.  6. Manji, H., Connolly, S., Kitchen, N., Lambert, C., & Mehta, A. (2014-10). Oxford Handbook of Neurology. Oxford, UK: Oxford University Press. Retrieved 17 Aug. 2021, from https://oxfordmedicine.com/view/10.1093/med/9780199601172.001.0001/med-9780199601172.  7. In Innes, J. A., In Dover, A. R., In Fairhurst, K., Britton, R., & Danielson, E. (2018). Macleod's clinical examination.  8. Bickley, L. S., Szilagyi, P. G., & In Hoffman, R. M. (2017). Bates' guide to physical examination and history taking.  9. Практикалық неврология: оқулық/ С.У.Каменова, К.К. Кужыбаева, А.М. Кондыбаева, Б.Е.Кенжеахметова – Алматы, 2021.- 100 бет  10. In Clark, M. A., In Finkel, R., In Rey, J. A., & In Whalen, K. (2012). *Pharmacology*.  **Internet resources:**  1. Medscape.com  2. Oxfordmedicine.com  3. Uptodate.com |
| 18 | Hereditary neuromuscular diseases. | Hereditary neuromuscular diseases. Classification of neuromuscular diseases. Progressive muscular dystrophy. Duchenne, Becker, Landuzi-Dejerin myopathy. Clinic, diagnostics, differential diagnostics. Modern medical and genetic possibilities of treatment, mechanism of action, pharmacokinetics, side effects, indications and contraindications.  Myasthenia gravis: pathogenesis, clinic, diagnosis, treatment. Myasthenic crisis: causes, clinic, diagnosis, treatment. Cholinergic crisis: causes, clinic, diagnosis, treatment. Thomsen's myotonia and dystrophic myotonia: clinic, diagnostics, prognosis. Paraclinical methods in the diagnosis of neuromuscular diseases: electromyography, electroneuromyography, muscle biopsy, study of creatine phosphokinase in blood serum, DNA studies. Children's spinal amyotrophy, congenital myopathies; "sluggish child" syndrome. Principles of pathogenetic treatment, classification, mechanism of action, pharmacokinetics, side effects, indications and contraindications.  Know about hereditary neuromuscular diseases,  Classify diseases about HNMZ,  Be able to identify family history;  Interpret clinical and laboratory-instrumental data for the diagnosis and treatment of the identified pathology in accordance with the principles of evidence-based medicine.  Diagnose by clinical manifestations of hereditary neuromuscular diseases;  Conduct a differentiated diagnosis of HNMZ with other clinically similar manifestations;  To identify the cause of their development to provide adequate medical care. Improve interpersonal communication and patient counseling skills; Lhermittes test, Cervical myelopathy test: <https://www.youtube.com/watch?v=4rPMC-l4KME> Duchenne Becker muscular dystrophy: <https://www.youtube.com/watch?v=DGOmN6rnsNk> Myasthenia gravis: <https://www.youtube.com/watch?v=bYGxGdu9MsQ> | 1. Гусев Е.И., Коновалов А.Н., Бурд Г.С. «Неврология и нейрохирургия», учебник. Издательство «Медицина» ISBN 5-225-00969-7  2. Нервные болезни : учебн. пособие / А.А.Скоромец, А.П.Скоромец, Т.А.Скоромец; под ред. проф. А.В.Амелина, проф. Е.Р.Баранцевича. – 10-е изд., доп. – М. : МЕДпресс-информ, 2017. – 568 с. : ил. ISBN 978-5-00030-441-9  3. Bähr, M., & Frotscher, M. (2019). Duus' topical diagnosis in neurology: Anatomy, physiology, signs, symptoms.  4. Ropper, A. H., Samuels, M. A., & Klein, J. (2014). Adams and Victor's principles of neurology.  5. In Daroff, R. B., In Jankovic, J., In Mazziotta, J. C., In Pomeroy, S. L., & Bradley, W. G. (2016). Bradley's neurology in clinical practice.  6. Manji, H., Connolly, S., Kitchen, N., Lambert, C., & Mehta, A. (2014-10). Oxford Handbook of Neurology. Oxford, UK: Oxford University Press. Retrieved 17 Aug. 2021, from https://oxfordmedicine.com/view/10.1093/med/9780199601172.001.0001/med-9780199601172.  7. In Innes, J. A., In Dover, A. R., In Fairhurst, K., Britton, R., & Danielson, E. (2018). Macleod's clinical examination.  8. Bickley, L. S., Szilagyi, P. G., & In Hoffman, R. M. (2017). Bates' guide to physical examination and history taking.  9. Практикалық неврология: оқулық/ С.У.Каменова, К.К. Кужыбаева, А.М. Кондыбаева, Б.Е.Кенжеахметова – Алматы, 2021.- 100 бет  10. In Clark, M. A., In Finkel, R., In Rey, J. A., & In Whalen, K. (2012). *Pharmacology*.  **Internet resources:**  1. Medscape.com  2. Oxfordmedicine.com  3. Uptodate.com |
|  | **The final lesson** |  |  |

**RUBRICATOR FOR ASSESSING LEARNING OUTCOMES**

**with summative assessment**

**Rating calculation formula**

**For the 4th course as a whole- overall admission rating (OAR)**

|  |  |
| --- | --- |
| Medical history | 30% |
| Border control 1 | 70% |
| **Total for BC-1** | 100% |
| 360 rating | 10% |
| Science project | 10% |
| Medical history | 20% |
| Border control 2 | 60% |
| **Total for BC -2** | 100% |

**Final score:** OAR 60% + exam 40%

**Exam (2 stages)** – MSQ testing (40%) + OSKE (60%)**ем**

**Team based learning – TBL**

|  |  |
| --- | --- |
|  | % |
| **Individual -- (IRAT)** | **30** |
| **Group -- (GRAT)** | **10** |
| **Appeal** | **10** |
|  |  |
| **Case rating -** | **20** |
| **Companion rating (bonus)** | **10** |
|  | **100%** |

**Case-based learning CBL**

|  |  |  |
| --- | --- | --- |
|  |  | % |
| 1 | **Interpreting survey data** | 10 |
| 2 | **Interpretation of physical examination findings** | 10 |
| 3 | **Preliminary diagnosis, justification, PD, examination plan** | 10 |
| 4 | **Interpretation of lab-instrumental examination data** | 10 |
| 5 | **Clinical diagnosis, problem sheet** | 10 |
| 6 | **Management and treatment plan** | 10 |
| 7 | **The validity of the choice of drugs and treatment regimens** | 10 |
| 8 | **Evaluation of effectiveness, prognosis, prevention** | 10 |
| 9 | **Special problems and questions on the case** | 10 |
| 10 | **Companion rating (bonus)** |  |
|  |  | **100%** |

**360° assessment checklist for student**

**CURATOR and Lecturer**

FULL NAME of Curator \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Very well** | **Criteria and points** | **Unsatisfactory** |
| **1** | **Constantly preparing for classes:**  For example, backs up statements with relevant references, makes short summaries  Demonstrates effective teaching skills, assists in teaching others | **Preparing for classes**  **10 8 6 4 2 0** | **Constantly not preparing for class**  For example, insufficient reading and study of problematic issues, makes little contribution to the knowledge of the group, does not analyze, does not summarize the material. |
| **2** | **Takes responsibility for their own learning:**  For example, manages their learning plan, actively tries to improve, critically evaluates information resources | **A responsibility**  **10 8 6 4 2 0** | **Takes no responsibility for their own learning:**  For example, depends on others to complete the learning plan, hides mistakes, rarely critically analyzes resources. |
| **3** | **Actively participates in the training of the group:**  For example, actively participates in discussions, willingly takes tasks | **Participation**  **10 8 6 4 2 0** | **Not active in the group training process:**  For example, does not participate in the discussion process, is reluctant to accept assignments |
| **4** | **Demonstrates effective group skills**  For example, takes the initiative, shows respect and correctness towards others, helps to resolve misunderstandings and conflicts. | **Group skills**  **10 8 6 4 2 0** | **Demonstrates ineffective group skills**  For example, inappropriately intervening, showing poor discussion skills by interrupting, avoiding or ignoring others, dominating or impatient |
| **5** | **Skilled in communicating with peers:**  For example, actively listening, receptive to non-verbal and emotional cues  Respectful attitude | **Communications**  **10 8 6 4 2 0** | **Difficulty communicating with peers**  For example, poor listening skills, unable or disinclined to listen to non-verbal or emotional cues  Use of obscene language |
| **6** | **Highly developed professional skills:**  Eager to complete tasks, seek opportunities for more learning, confident and skilled  Compliance with ethics and deontology in relation to patients and medical staff  Observance of subordination. | **Professionalism**  **10 8 6 4 2 0** | **Clumsy, fearful, refusing to try even basic procedures**  Inferiority in professional behavior - causing harm to the patient, rude disrespectful attitude towards medical staff, colleagues |
| **7** | **High introspection:**  For example, recognizes the limitations of their knowledge or abilities without becoming defensive or rebuking others. | **Reflection**  **10 8 6 4 2 0** | **Low introspection:**  For example, needs more awareness of the limits of understanding or ability and does not take positive steps to correct |
| **8** | **Highly developed critical thinking:**  For example, appropriately demonstrates skill in performing key tasks such as generating hypotheses, applying knowledge to case studies, critically evaluating information, drawing conclusions aloud, explaining the process of thinking | **Critical thinking**  **10 8 6 4 2 0** | **Critical Thinking Deficiency:**  For example, has difficulty completing key tasks. As a rule, does not generate hypotheses, does not apply knowledge in practice either because of their lack or because of inability (lack of induction), does not know how to critically evaluate information |
| **9** | Fully adheres to the rules of academic conduct with understanding, suggests improvements in order to increase efficiency.  Complies with the ethics of communication - both oral and written (in chats and appeals) | **Compliance with the rules of academic conduct**  **10 8 6 4 2 0** | Пренебрегает правилами, мешает другим членам коллектива  Neglects the rules, interferes with other members of the team |
| **10** | Fully follows the rules with full understanding of them, encourages other members of the group to adhere to the rules  Strictly adheres to the principles of medical ethics and PRIMUM NON NOCERE | **Compliance with the rules of conduct in the hospital**  **10 8 6 4 2 0** | Breaks the rules.  Encourages and provokes other members of the group to break the rules  Creates a threat to the patient |
|  | Maximum | **100 points** |  |

\* gross violation of professional behavior, rules of conduct in the hospital - or a decrease in the grade for boundary control or cancellation; ethical committee

Such violations are a threat to the health of patients due to action (for example, smoking on the territory of the hospital) or inaction; rudeness and rudeness towards any person (patient, classmate, colleague, teacher, doctor, medical staff)

**POINT-RATING ASSESSMENT (CHECK-LIST) OF PROFESSIONAL SKILLS OF STUDENTS**

**Examination of motor function and superficial reflexes**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| № | **Evaluation criteria** | **Evaluation criteria** | | |  |  |
| does not have manual skills | conducted chaotically, with omissions, without effect | not carried out fully enough with technical errors | carried out systematically, but with minor technical inaccuracies | carried out systematically, technically correct and efficiently |
| **2** | **4** | **6** | **8** | **10** |
|  | volume of active movement |  |  |  |  |  |
|  | muscle tone of the upper and lower limbs |  |  |  |  |  |
|  | muscle strength of the upper and lower limbs |  |  |  |  |  |
|  | muscle trophism |  |  |  |  |  |
|  | conjunctival reflex |  |  |  |  |  |
|  | pharyngeal reflex |  |  |  |  |  |
|  | soft palate reflex |  |  |  |  |  |
|  | upper abdominal reflex |  |  |  |  |  |
| 9 | middle and lower abdominal reflex |  |  |  |  |  |
| 10 | plantar reflex |  |  |  |  |  |

**Examination of deep reflexes**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| № | **Evaluation criteria** | **Evaluation criteria** | | |  |  |
| does not have manual skills | conducted chaotically, with omissions, without effect | not carried out fully enough with technical errors | carried out systematically, but with minor technical inaccuracies | carried out systematically, technically correct and efficiently |
| **2** | **4** | **6** | **8** | **10** |
| 1 | superciliary reflex |  |  |  |  |  |
| 2 | nasopalpebral reflex |  |  |  |  |  |
| 3 | mandibular reflex |  |  |  |  |  |
| 4 | biceps reflex |  |  |  |  |  |
| 5 | triceps reflex |  |  |  |  |  |
| 6 | carpo-radial reflex |  |  |  |  |  |
| 7 | scapular-humeral reflex |  |  |  |  |  |
| 8 | deep abdominal reflex |  |  |  |  |  |
| 9 | knee jerk reflex |  |  |  |  |  |
| 10 | achilles reflex |  |  |  |  |  |

**Examination of pathological reflexes and clonuses**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| № | **Evaluation criteria** | **Evaluation criteria** | | |  |  |
| does not have manual skills | conducted chaotically, with omissions, without effect | not carried out fully enough with technical errors | carried out systematically, but with minor technical inaccuracies | carried out systematically, technically correct and efficiently |
| **2** | **4** | **6** | **8** | **10** |
| 1 | *Study of reflexes of oral automatism:*  proboscis |  |  |  |  |  |
| 2 | exploratory and sucking |  |  |  |  |  |
| 3 | reflex Marinescu-Radovici |  |  |  |  |  |
| 4 | Reflexes of spinal automatism of the upper limbs:  Rassolimo |  |  |  |  |  |
| 5 | Bechterew's reflex |  |  |  |  |  |
| 6 | Zhukovsky Reflex |  |  |  |  |  |
| 7 | Jacobson-Laska |  |  |  |  |  |
| 8 | Hand clonus |  |  |  |  |  |
| 9 | patella clonus |  |  |  |  |  |
| 10 | Foot clonus |  |  |  |  |  |

**Examination of pathological reflexes from the lower extremities**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| № | **Evaluation criteria** | **Evaluation criteria** | | |  |  |
| does not have manual skills | conducted chaotically, with omissions, without effect | not carried out fully enough with technical errors | carried out systematically, but with minor technical inaccuracies | carried out systematically, technically correct and efficiently |
| **2** | **4** | **6** | **8** | **10** |
| 1 | *Examined pathological extensor reflexes from the lower extremities:*  Babinsky |  |  |  |  |  |
| 2 | Oppenheim |  |  |  |  |  |
| 3 | Gordon |  |  |  |  |  |
| 4 | Schaeffer |  |  |  |  |  |
| 5 | Chaddock |  |  |  |  |  |
| 6 | *Examined flexor pathological reflexes from the lower extremities:*Rassolimo |  |  |  |  |  |
| 7 | Bekhterev I |  |  |  |  |  |
| 8 | Bekhterev II |  |  |  |  |  |
| 9 | Zhukovsky |  |  |  |  |  |
| 10 | Flexor tangential reflex |  |  |  |  |  |

**Examination of superficial sensitivity and symptoms of tension of the nerve trunks**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| № | **Evaluation criteria** | **Evaluation criteria** | | |  |  |
| does not have manual skills | conducted chaotically, with omissions, without effect | not carried out fully enough with technical errors | carried out systematically, but with minor technical inaccuracies | carried out systematically, technically correct and efficiently |
| **2** | **4** | **6** | **8** | **10** |
| 1 | pain sensitivity |  |  |  |  |  |
| 2 | temperature sensitivity |  |  |  |  |  |
| 3 | tactile sensitivity |  |  |  |  |  |
| 4 | Examined the symptoms of tension of the nerve trunks: Neri |  |  |  |  |  |
| 5 | Dejerine |  |  |  |  |  |
| 6 | Lasegue I |  |  |  |  |  |
| 7 | Lasegue II |  |  |  |  |  |
| 8 | Wasserman |  |  |  |  |  |
| 9 | Matskevich |  |  |  |  |  |
| 10 | Sikar |  |  |  |  |  |

**Examination of deep and complex types of sensitivity**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| № | **Evaluation criteria** | **Evaluation criteria** | | | | |
| does not have manual skills | conducted chaotically, with omissions, without effect | not carried out fully enough with technical errors | carried out systematically, but with minor technical inaccuracies | carried out systematically, technically correct and efficiently |
| **2** | **4** | **6** | **8** | **10** |
| 1-2 | joint-muscular sense(position sense) |  |  |  |  |  |
| 3 | sense of weight |  |  |  |  |  |
| 4 | Sense of pressure |  |  |  |  |  |
| 5 | vibration sensitivity |  |  |  |  |  |
| 6 | kinesthetic sensitivity |  |  |  |  |  |
| 7-8 | two-dimensional sense |  |  |  |  |  |
| 9 | sense of discrimination |  |  |  |  |  |
| 10 | stereognosis |  |  |  |  |  |

**Examination of the function of the cranial nerves (I, II, III, IV, VI)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| № | **Evaluation criteria** | **Evaluation criteria** | | | | |
| does not have manual skills | conducted chaotically, with omissions, without effect | not carried out fully enough with technical errors | carried out systematically, but with minor technical inaccuracies | carried out systematically, technically correct and efficiently |
| **2** | **4** | **6** | **8** | **10** |
| 1 | Examination of the olfactory nerve |  |  |  |  |  |
| 2 | Examination of visual acuity |  |  |  |  |  |
| 3 | Examination of visual fields |  |  |  |  |  |
| 4 | Examination of Color Sensing |  |  |  |  |  |
| 5 | Estimate the size of the eye slits and pupils |  |  |  |  |  |
| 6 | Examination of the direct reaction of the pupils to light |  |  |  |  |  |
| 7 | Examination of the friendly response of the pupils to light |  |  |  |  |  |
| 8 | Examination of the movement of the eyeballs |  |  |  |  |  |
| 9 | Examination of Convergence |  |  |  |  |  |
| 10 | Examination of accommodation |  |  |  |  |  |

**Examination of the function of the trigeminal nerve**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| № | **Evaluation criteria** | **Evaluation criteria** | | | | |
| does not have manual skills | conducted chaotically, with omissions, without effect | not carried out fully enough with technical errors | carried out systematically, but with minor technical inaccuracies | carried out systematically, technically correct and efficiently |
| **2** | **4** | **6** | **8** | **10** |
| 1 | Determination of soreness at the exit sites of the branches of the trigeminal nerve |  |  |  |  |  |
| 2 | Examination of the movement of the lower jaw |  |  |  |  |  |
| 3 | Determine the tone and trophism of the chewing muscles |  |  |  |  |  |
| 4 | Examination of the mandibular reflex |  |  |  |  |  |
| 5 | Examination of the surface sensitivity of the face along the branches of the trigeminal nerve |  |  |  |  |  |
| 6-7 | Examination of the surface sensitivity of the face by Zelder zones |  |  |  |  |  |
| 8 | Examination of deep facial sensitivity |  |  |  |  |  |
| 9 | Interviewed subjective data for trigeminal neuralgia:  - are there unilateral, paroxysmal, short-term pains on the face? |  |  |  |  |  |
| 10 | - Is the pain relieved by chewing, talking or washing? |  |  |  |  |  |

**Examination of the function of the cranial nerves (VІІ, VІІІ)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| № | **Evaluation criteria** | **Evaluation criteria** | | | | |
| does not have manual skills | conducted chaotically, with omissions, without effect | not carried out fully enough with technical errors | carried out systematically, but with minor technical inaccuracies | carried out systematically, technically correct and efficiently |
| **2** | **4** | **6** | **8** | **10** |
| 1 | Ask to raise eyebrows |  |  |  |  |  |
| 2 | Ask to frown |  |  |  |  |  |
| 3 | Ask to close eyes tightly |  |  |  |  |  |
| 4 | Examination of the symmetry of the nasolabial folds |  |  |  |  |  |
| 5 | Ask to puff out cheeks (sail symptom) |  |  |  |  |  |
| 6 | Ask to whistle with lips |  |  |  |  |  |
| 7 | Taste detection on the front 2/3 of the tongue |  |  |  |  |  |
| 8 | Whispering Research |  |  |  |  |  |
| 9-10 | Investigation of the presence of nystagmus |  |  |  |  |  |

**Examination of the function of the cranial nerves (ІХ, Х, ХІ, ХІІ)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| № | **Evaluation criteria** | **Evaluation criteria** | | | | |
| does not have manual skills | conducted chaotically, with omissions, without effect | not carried out fully enough with technical errors | carried out systematically, but with minor technical inaccuracies | carried out systematically, technically correct and efficiently |
| **2** | **4** | **6** | **8** | **10** |
| 1 | Swallowing function examination (choking, dysphagia,) |  |  |  |  |  |
| 2 | examination of Phonation |  |  |  |  |  |
| 3 | examination of the pharyngeal reflex |  |  |  |  |  |
| 4 | examination of the movement of the soft palate |  |  |  |  |  |
| 5-6 | examination on the taste of the root of the tongue |  |  |  |  |  |
| 7 | examination of head turns to the sides |  |  |  |  |  |
| 8 | Shoulder Shrug and Shoulder Adduction Study |  |  |  |  |  |
| 9-10 | Ask to stick out tongue and explore the symmetry, movement and trophism of the tongue |  |  |  |  |  |

**Examination of the function of cerebellum**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| № | **Evaluation criteria** | **Evaluation criteria** | | | | |
| does not have manual skills | conducted chaotically, with omissions, without effect | not carried out fully enough with technical errors | carried out systematically, but with minor technical inaccuracies | carried out systematically, technically correct and efficiently |
| **2** | **4** | **6** | **8** | **10** |
| 1 | Ask the patient to walk in one line, Romberg test evaluation |  |  |  |  |  |
| 2 | Diadochokinesis |  |  |  |  |  |
| 3 | Finger test, Finger-finger test |  |  |  |  |  |
| 4 | Dysmetria test |  |  |  |  |  |
| 5 | Knee-heel test |  |  |  |  |  |
| 6 | Examined Babinsky's asynergy |  |  |  |  |  |
| 7 | Examined muscle tone |  |  |  |  |  |
| 8 | Examined handwriting |  |  |  |  |  |
| 9 | Examined Speech |  |  |  |  |  |
| 10 | Examination of nystagmus |  |  |  |  |  |

**Examination of the function of the extrapyramidal system**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| № | **Evaluation criteria** | **Evaluation criteria** | | | | |
| does not have manual skills | conducted chaotically, with omissions, without effect | not carried out fully enough with technical errors | carried out systematically, but with minor technical inaccuracies | carried out systematically, technically correct and efficiently |
| **2** | **4** | **6** | **8** | **10** |
| 1 | Ask the patient to stand up and walk around the room |  |  |  |  |  |
| 2 | Examination of handwriting (ask to write) |  |  |  |  |  |
| 3-4 | Examined the Westphal Phenomenon (from foot) |  |  |  |  |  |
| 5-6 | Examined the Foix Thévenard phenomenon (from his knees) |  |  |  |  |  |
| 7-8 | Stuart-Holmes test |  |  |  |  |  |
| 9 | Examined the symptom of the eye, face, tongue |  |  |  |  |  |
| 10 | Examined the muscle tone of the upper and lower limbs |  |  |  |  |  |

**Examination of meningeal symptoms**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| № | **Evaluation criteria** | **Evaluation criteria** | | | | |
| does not have manual skills | conducted chaotically, with omissions, without effect | not carried out fully enough with technical errors | carried out systematically, but with minor technical inaccuracies | carried out systematically, technically correct and efficiently |
| **2** | **4** | **6** | **8** | **10** |
| 1 | Survey of subjective data |  |  |  |  |  |
| 2 | assessment of the patient's condition |  |  |  |  |  |
| 3 | Examined the stiffness of the muscles of the back of the head |  |  |  |  |  |
| 4 | Examined Kernig's symptom |  |  |  |  |  |
| 5 | Investigated the upper symptom of Brudzinsky |  |  |  |  |  |
| 6 | Investigated the middle symptom of Brudzinski |  |  |  |  |  |
| 7 | Investigated the lower symptom of Brudzinsky |  |  |  |  |  |
| 8 | Mendel’s symptom. |  |  |  |  |  |
| 9-10 | Bekhterev's facial reflex. |  |  |  |  |  |

**Examination of the autonomic nervous system**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| № | **Evaluation criteria** | **Evaluation criteria** | | | | |
| does not have manual skills | conducted chaotically, with omissions, without effect | not carried out fully enough with technical errors | carried out systematically, but with minor technical inaccuracies | carried out systematically, technically correct and efficiently |
| **2** | **4** | **6** | **8** | **10** |
| 1 | Local dermographism |  |  |  |  |  |
| 2 | Painful dermographism (reflex) |  |  |  |  |  |
| 3 | Stange test |  |  |  |  |  |
| 4 | Orthostatic test (Prevel) |  |  |  |  |  |
| 5 | Clinostatic test (Danielopol) |  |  |  |  |  |
| 6 | Cold test |  |  |  |  |  |
| 7-8 | Solar reflex |  |  |  |  |  |
| 9-10 | Pilomotor reflex |  |  |  |  |  |

**Point-rating assessment (check-list) of medical history management (maximum 100 points)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **№** | **Criteria** | **10** | **8** | **6** | **4** | **2** |
| ***Excellent*** | ***Good*** | ***Satisfactory*** | ***Need correction*** | ***Bad*** |
| 1 | Patient complaints: major and minor | Completely and systematically, with an understanding of important details | Accurate and complete | basic information | Incomplete or inaccurate, some details are missing | Misses important |
| 2 | Collecting an anamnesis of the disease |
| 3 | Anamnesis of life |
| 4 | Objective status - general examination | Completely and systematically, with an understanding of important details | Consistently and correctly | Identification of main data | Incomplete or not quite correct, not attentive to patient comfort | Inappropriate data |
| 5 | **Nervous system** |  | Complete, effective, technically correct application of all examination skills, physical examination with minor errors, or corrected during execution | Revealed basic data  Physical examination skills learned | Incomplete or Inaccurate  Physical examination skills need to be improved | Important data are missing.  Inappropriate physical examination skills |
| 6 | Medical history presentation | Maximum full description and presentation  Understands the problem in a complex, connects with the patient’s features | precise, focused; choice of facts shows understanding | Record is by form, includes all basic information; | Many important omissions, inaccurate or unimportant facts are often included | Lack of control of the situation, many important omissions, many clarifying questions |
|  |  |  |  |  |  |  |

**Point-rating assessment (check-list) of the ISW (independent student’s work) - creative task (maximum 90 points) + bonuses for English and time management**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | **10** | **8** | **4** | **2** |
| **1** | **Problem solving** | The organized concentrated, allocates all questions which are falling into to the main revealed problem with a comprehension of a concrete clinical situation | Organized, the concentrated, allocates all questions which are falling into to the main revealed problem, but there is no comprehension of a concrete clinical situation | Not the concentrated,  Derivation on the questions which are not falling into to the main revealed problem | Inaccurate, misses the main thing, disharmonious data. |
| **2** | **Information** | All necessary information on a subject in the free, serial, logical manner is completely conveyed  The product form is adequately chosen | All necessary information in a logical manner, but with shallow inaccuracies is conveyed | All necessary information on a subject is explained chaotically, with not gross errors | Important information on a subject, gross errors is not reflected |
| **3** | **Significance** | Material is chosen on the basis of authentically established facts.  Manifestation of a comprehension on the level or quality of proofs | Some conclusions and the conclusions are formulated on the basis of assumptions or the incorrect facts. There is no complete comprehension of level or quality of proofs | Not the sufficient comprehension of a problem, some conclusions and the conclusions are based on the inexact and not proved data – doubtful resources are used | Conclusions and the conclusions are not proved or irregular |
| **4** | **Logic** | logical and well reasoning, has internal unity, provisions in a product follow one of another and are logically interdependent between themselves | Has internal unity, provisions of a product one of another follows, but there are inaccuracies | There is no sequence and logicality in statement, but it is possible to keep track of the main idea | Jumps from one on another, it is difficult to catch the main idea |
| **5** | **Recourses** | Literary data are submitted in logical interrelation, show deep study of the main and padding informational resources | Literary data show study of the main literature | Only ordinary recourses | Inconsistency and randomness in statement of data, an inconsistency  There is no knowledge of the main textbook  Using of Google |
| **6** | **Practical application** | High | Good | moderate | no |
| **7** | **Patient focusing** | High | Good | moderate | no |
| **8** | **Applicability in future practice** | High | Good | moderate | no |
| **9** | **Presenation** | Correctly, to the place all opportunities of Power Point or other e-softs, the free possession of material, a sure manner of statement are used | It is overloaded or are insufficiently used visual materials, inexact possession of material | Visual materials are not informative | Does not own material, is not able to explain it |
| **bonus** | **Time management**\* | 10  For before deadline | In time | Good quality but a little late  Minus 2-4 | After deadline more than 24 hours  Minus 10 |
| **bonus** | **Rating**\*\* | 10  points additional | Outstanding work, for example:  The best work in group  Creative approach  Innovative approach to realization of a task  According to the proposal of group | | |
|  | \* The deadline is determined by the teacher, as a rule - the day of the boundary control  \*\* thus, you can get 90 points as much as possible, to get above 90-you need to show a result higher than expected | | | | |