



Non-profit educational institution  
Educational-scientific-production complex  
"International University of Kyrgyzstan"

Quality Management System  
SYLLABUS «Neurology with the course of Neurosurgery»  
"General Medicine» ISM

**International School of Medicine  
Department of "Special Clinical Disciplines"**

**SYLLABUS**

**"Neurology with the course of Neurosurgery"**


main educational program  
in the specialty General Medicine (for foreign citizens)

graduate qualification: general practitioner

Full-time education

Year	4
Semester	8
Credit / Exam (semester)	8
Total Curriculum Credits	3
Total curriculum hours	90

**Bishkek 2022**

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## 1. The work program of the academic discipline

### 1.1. Explanatory note

**Mission of ISM IUK** - *training of competent specialists in the field of medicine, corresponding to international standards and traditions of medical ethics, ready for continuous professional growth using modern achievements of science and practice, to solve public health problems.*

### Annotation of the academic discipline

Neurology is the branch of medicine concerned with the diagnosis and treatment of all categories of conditions and disease involving the brain, the spinal cord and the peripheral nerves, the mechanisms and patterns of their occurrence and development, methods of their prevention, diagnosis and treatment.

### The purpose and objectives of the discipline

#### The purpose of the discipline

Neurology course should give basic knowledge about topographic diagnosis, neurological symptom theory, neurological syndromes, diseases and injuries in adults and basic medical treatment of these conditions.


#### Discipline objectives:

The task of the Department of Neurology in the 4th year is to train a general practitioner who knows the basics of clinical research of a neurological patient with the subsequent determination of the level and localization of lesions of the nervous system, knowledge of the main neurological symptoms and syndromes.

- Gather a neurological history relevant to the patient presentation;
- Perform a complete neurological examination;
- Describe basic anatomy, embryological development, physiology and pathology of the nervous system;
- Localize a neurological lesion to the correct region of the nervous system;
- Identify relevant pathophysiologic categories and combine with history, localization, and time course to generate a broad differential diagnosis.

### Place of discipline in the structure of MEP (prerequisites, post-requisites)

The discipline "Neurology" is included in the basic part of the professional cycle of the ISM IUK for the specialty "General Medicine" (code 560001). This discipline is studied by students of the specialty General Medicine (for foreign citizens) and is included in the mandatory scope of the studied disciplines of the State Educational Institution of Higher Professional Education.

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For the successful development of this discipline, students must master the following disciplines:


- Latin language
- Normal anatomy
- Pathological anatomy
- Biophysics
- Normal and pathological physiology
- Propediatrics
- Propaedeutic of Internal Medicine
- Bioethics
- History of medicine
- Psychology and pedagogy
- Medical informatics
- Pathophysiology, clinical pathophysiology
- Radiology
- Hygiene
- Public health and health care, health economics
- Epidemiology
- Clinical pharmacology

**Competencies of students, formed as a result of mastering the discipline, the planned results of mastering the discipline -**

Graduate in the specialty "General Medicine" with the assignment of the qualification of a specialist "Doctor of general practice" in accordance with the Governmental Educational Institution of Higher Professional Education and the Main Educational Program and the tasks of professional activity, must have the following professional competencies:

Code	Content of competence
PC-5	manages work with medical and technical equipment, uses it in work with patients, owns computer technology, receives information from various sources, works with. Information in advanced computer games, the use of modern information technologies to solve professional problems.
PC-16	able to provide first aid to the adult population and children in case of emergency and life-threatening conditions, to refer patients for hospitalization in a planned and emergency manner.

- Planned results of mastering the academic discipline "Neurology" are determined by the competencies acquired by the student, i.e. his ability to apply

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knowledge, skills and personal qualities in accordance with the goals of the educational program and the tasks of professional activity:

PO7 - the ability to use the results of clinical and laboratory-instrumental studies in order to make a diagnosis and determine the amount of therapy.

After mastering the discipline "Neurology" student:

*will know*

- Medical tactics and be able to provide first aid for urgent and life-threatening neurological conditions;
- Main clinical manifestations (symptoms, syndromes) of the studied neurological diseases;
- Methods of conducting basic neurosurgical interventions;
- Principles of conservative and surgical treatment of patients with diseases of the nervous system;
- Principles of rehabilitation of neurological and neurosurgical patients.

*will be able to*


- Perform a complete neurological examination including relevant special clinical maneuvers;
- Make a clinical diagnosis of major neurological and neurosurgical diseases, include those of a hereditary nature in adults and children;
- Apply knowledge of the clinical and biomedical sciences relevant to Neurology
- determine the most appropriate procedures or therapies.

*will own*

- Examination of muscle strength, muscle tone;
- Technique of the Barre test;
- Research of deep tendon reflexes;
- Sensitivity research methods;
- Examination of co-ordination
- Examination of meningeal symptoms;
- Bedside myasthenia gravis assessment;
- Lumbar puncture with liquor dynamic tests and CSF analysis;
- Methodology for applying basic neurosurgical bandages and dressings;
- Methods of primary surgical management of head injury;
- Methods of immobilization and transportation of emergency neurosurgical patients.

*will be able to analyze*

- Analyze and recognize common manifestations, classification of and clinical approach to manifestations of neurological diseases;
- Elicit a history, perform a physical exam, select appropriate investigations, and

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interpret their results for the purpose of diagnosis and management, disease prevention, and health promotion;

- Identify patients at risk factors, epidemiology, pathology, pathogenesis, clinical features including symptoms and signs, natural history, investigation, management and prognosis of neurological conditions;
- Identify neurological emergencies and respond in a timely fashion.

*will be able to synthesize*

- Basic principles of investigation and diagnostic assessment of neurological disorders (indications and limitations of EEG, EMG/NCS, Indications for, and contraindications and limitations of neuroimaging, including the selection of magnetic resonance studies and indications for functional neuroimaging, interpretation of results and other diagnostic investigations.


*will be able to assess*

- Neurological and neurosurgical emergencies, predict and manage patients at risk for acute deterioration.

## **1.2. Recommended educational technologies**

For the development of students of the academic discipline "Neurology", obtaining knowledge and forming professional competencies, the following educational technologies are used:

- lecture with elements of discussion, problem statement;
- lectures - visual presentations;
- analysis of specific situations;
- role play "doctor - patient";
- lecture-visualization,
- problem lecture,
- lesson-conference,
- training,
- debate,
- brainstorm,
- Master Class,
- small group method,
- classes using simulators,
- computer simulation,
- analysis of clinical cases,
- situational tasks,
- medical history preparation and defense,
- use of computer training programs,

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- interactive atlases,
- attending medical conferences, consultations,
- participation in scientific and practical conferences, congresses, symposia,
- educational research work of a student,
- conducting subject Olympiads,
- preparation of written analytical works,
- preparation and defense of abstracts.

### 1.3. The scope of the discipline and types of educational work

According to the curriculum 2021	8 sem.	Total	
		in hours	in credits
<b>Total labor intensity</b>	<b>90</b>	<b>90</b>	<b>3</b>
<b>Classroom work</b>	27	54	
Lectures	9	18	
Practical lessons	18	36	
Independent work	18	18	
IWS(T)	18	18	
<b>Final control type</b>	exam		

## 1.4. Structure of the discipline

Neurology with neurosurgery course:

No.	Name sections and topics disciplines (lectures and practical exercises)	Auditory lessons				Total hours for classroom work		Student's independent work	Formed competencies	Used educational technologies, ways and methods of teaching	dummies	Forms of the current and frontier control academic performance
		lectures	Seminars	workshops	laboratory work							
1	Acute disorders of cerebral circulation: ischemic and hemorrhagic strokes, subarachnoid hemorrhage. Clinical features of stroke in pregnant women. Curation of patients.	2		4		6	2	4	PC 5, PC 16	lecture using video materials practice: introductory seminar; video demonstration on practical skills		Evaluation of mastering practical skills (skills)
2	Chronic disorders of cerebral circulation.	2		2		4	2	2	PC 5, PC 16	visualization lecture		Testing, control work.



	Gerontological aspects in clinical neurology.									practice: Solving situational problems brainstorm;		Evaluation of mastering practical skills (skills).
3	Inflammatory diseases of the brain: encephalitis, meningitis, arachnoiditis.	2		4		6	2	4	PC 5, PC 16	problematic lecture  practice: Solution of situational problems; workout with exercise equipment	Fake spinal puncture	Evaluation of mastering practical skills (skills). team testing
4	Specific diseases of the nervous system: neuroAIDS, neurorheumatism, neurosyphilis, neurobrucellosis	2		2		6	2	2	PC 5, PC 16	practice: The game "concilium"; clinical case;		Oral survey with consolidation of material
5	Diseases of the peripheral nervous system: neuritis, neuralgia.			2		6	2	2	PC 5, PC 16	lecture using video materials  practice: clinical case;		Classes with the use of simulators, simulators. Testing. Test.



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										forum type discussion		
6	Dorsopathies: lumbodysnia, lumboischialgia, radiculopathy.			2			2	4	PC 5, PC 16	practice: The doctor- patient game  consolidatio n of the topic in the form of a lecture on the topic of the lesson		Solving crossword puzzles, listening to student essays
7	Module #1			2						using test.edu.kg site		individual testing
8	Chronic progressive diseases of the nervous system: ALS, Parkinson's disease, Alzheimer's disease, cerebral palsy, myasthenia gravis.	2		4		4	2	2	PC 5, PC 16	problematic lecture  practice: development of practical skills;  clinical case	Practice in the simulation center	classes using simulators, simulators. Testing. Test.
9	Diseases of the autonomic nervous system: autonomic	2		2		32	2	2	PC 5, PC 16	visualization lecture		Evaluation of mastering



	crises, hypothalamic syndrome, migraine.									<i>practice:</i> <i>Solution of situational problems;</i> <i>development of practical skills</i>		<i>practical skills (skills).</i> <i>Use of computer training programs.</i>
10	Epilepsy and differential diagnosis of convulsive conditions. Classification.			2			2	2	PC 5, PC 16	<i>practice:</i> <i>demonstration of a video film on practical skills;</i> <i>analysis clinical case</i>		<i>Evaluation of mastering practical skills (skills). team testing</i>
11	Autoimmune demyelinating diseases of the nervous system: multiple sclerosis, leukoencephalitis.	2		2		4	1	2	PC 5, PC 16	<i>visualization lecture</i> <i>practice:</i> <i>business and role-playing educational game;</i> <i>analysis of clinical case;</i>		<i>Use of computer training programs.</i> <i>Listening to student essays.</i>




12	Headache. Differential diagnosis of primary headache. The concept of secondary headache.	2		2		4	2	2	PC 5, PC 16	problematic lecture  practice: development of practical skills; analysis of clinical cases		Oral survey with consolidation of the material.  team testing
13	Vascular and inflammatory diseases of the spinal cord.	2		2		4	1	2	PC 5, PC 16	visualization lecture practice: small group method, forum type discussion development of practical skills	Practice in the simulation center	Evaluation of mastering practical skills (skills).  Classes with the use of simulators, simulators.
14	<b>Module #2</b>			2		4	1	2	PC 5, PC 16	using test.edu.kg site		individual testing
15	Neurological complications of spinal			2		4	2	2	PC 5, PC 16	practice: demonstration of a video		Test. Evaluation of mastering

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osteochondrosis. Diagnostic methods. Volume and nature of surgical treatment. Damage to peripheral nerves. Major clinical syndromes. Treatment is conservative and surgical. Outcomes and performance.										film on practical skills;  brainstorm; analysis of clinical cases.		practical skills (skills).  Final group testing

**Examples of educational technologies, ways and methods of teaching (with abbreviations):** traditional lecture (L), visualization lecture (LV), problematic lecture (PL), lecture–press conference (LPC), lesson–conference (LC), training (T), debate (D), brainstorming (MS), master class (MC), "round table" (RT), activation of creative activity (ATD), regulated discussion (RD), discussion of the forum type (F), business and role-playing educational game (DI, RI), small group method (SG), classes using simulators, simulators (Tr), computer simulation (CS), analysis of clinical cases (CS), preparation and defense of a medical history (MH), use of computer training programs (CTP), interactive atlases (IA), visiting medical conferences, consultations (VC), participation in scientific and practical conferences (SPC), congresses, symposiums (Sim), student research work (SRW), conducting subject Olympiads (O), preparation of written analytical papers (AR), preparation and defense of abstracts (P), project technology (PT), excursions (E), distance learning technologies (DLT).

**Approximate forms of current and boundary control of progress (with abbreviations):** T - testing, Pr - assessment of the development of practical skills (skills), SV - solving situational problems, CW - control work, CT - control task, MH - writing and defending a medical

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*history, CL - writing and defending a curatorial list, P - writing and defense of the abstract, C - interview on control questions, D - preparation of the report, etc.*



### 1.4.2. Organization of independent work of students

No	Topic of student's independent work:	Task for SRS	Recommended literature	Timing deadline (week number)
1.	Vascular diseases of the spinal cord. Ischemic stroke and hemorrhage in the spinal cord.	abstract, presentation, report preparation.	1.Brazis, P.W. Masdeu, JC, Biller, J. Localization in Clinical Neurology. 7th edition 2. Glick, T. Neurologic skills: examination and diagnosis 3. Rowland, L. Merritt's Textbook of Neurology. 4. Adams, R. Victor, M. Ropper, A. Principles of Neurology 5 Biller J. Practical Neurology 6 Bradley, W.G. Daroff, R.B. Fenichel, G.M. Marsden CD. Neurology in Clinical Practice.	1
2.	EEG. Clinical significance in neurology.	Abstract, presentation, report preparation	1.Brazis, P.W. Masdeu, JC, Biller, J. Localization in Clinical Neurology. 7th edition	2



			<p>2. Glick, T. Neurologic skills: examination and diagnosis</p> <p>3. Rowland, L. Merritt's Textbook of Neurology.</p> <p>4. Adams, R. Victor, M. Ropper, A. Principles of Neurology</p> <p>5 Biller J. Practical Neurology</p> <p>6 Bradley, W.G. Daroff, R.B. Fenichel, G.M. Marsden CD. Neurology in Clinical Practice.</p>	
3.	ENMG and its clinical significance in neurology.	Abstract, presentation, preparation on dummies.	<p>1.Brazis, P.W. Masdeu, JC, Biller, J. Localization in Clinical Neurology. 7th edition</p> <p>2. Glick, T. Neurologic skills: examination and diagnosis</p> <p>3. Rowland, L. Merritt's Textbook of Neurology.</p> <p>4. Adams, R. Victor, M. Ropper, A. Principles of Neurology</p> <p>5 Biller J. Practical Neurology</p> <p>6 Bradley, W.G. Daroff, R.B. Fenichel, G.M.</p>	3



			Marsden CD. Neurology in Clinical Practice.	
4.	Damage to the nervous system in somatic diseases.	Abstract, presentation, preparation on dummies.	<p>1. Brazis, P.W. Masdeu, JC, Biller, J. Localization in Clinical Neurology. 7th edition</p> <p>2. Glick, T. Neurologic skills: examination and diagnosis</p> <p>3. Rowland, L. Merritt's Textbook of Neurology.</p> <p>4. Adams, R. Victor, M. Ropper, A. Principles of Neurology</p> <p>5 Biller J. Practical Neurology</p> <p>6 Bradley, W.G. Daroff, R.B. Fenichel, G.M. Marsden CD. Neurology in Clinical Practice.</p>	4
5.	Damage to the nervous system in occupational diseases.	Abstract, presentation, report preparation.	<p>1. Brazis, P.W. Masdeu, JC, Biller, J. Localization in Clinical Neurology. 7th edition</p> <p>2. Glick, T. Neurologic skills: examination and diagnosis</p> <p>3. Rowland, L. Merritt's Textbook of Neurology.</p> <p>4. Adams, R. Victor, M. Ropper, A. Principles of Neurology</p>	5



			<p>5 Biller J. Practical Neurology</p> <p>6 Bradley, W.G. Daroff, R.B. Fenichel, G.M. Marsden CD. Neurology in Clinical Practice.</p>	
6.	Neuroses and neurotic states.	Abstract, presentation, report preparation.	<p>1. Brazis, P.W. Masdeu, JC, Biller, J. Localization in Clinical Neurology. 7th edition</p> <p>2. Glick, T. Neurologic skills: examination and diagnosis</p> <p>3. Rowland, L. Merritt's Textbook of Neurology.</p> <p>4. Adams, R. Victor, M. Ropper, A. Principles of Neurology</p> <p>5 Biller J. Practical Neurology</p> <p>6 Bradley, W.G. Daroff, R.B. Fenichel, G.M. Marsden CD. Neurology in Clinical Practice.</p>	6
7.	Medical genetic counseling. Issues of deontology of patients with hereditary diseases. Express diagnostics and screening tests in clinical genetics.	Abstract, presentation, report preparation.	<p>1. Brazis, P.W. Masdeu, JC, Biller, J. Localization in Clinical Neurology. 7th edition</p> <p>2. Glick, T. Neurologic skills: examination and diagnosis</p> <p>3. Rowland, L. Merritt's Textbook of Neurology.</p>	6



			<p>4. Adams, R. Victor, M. Ropper, A. Principles of Neurology</p> <p>5 Biller J. Practical Neurology</p> <p>6 Bradley, W.G. Daroff, R.B. Fenichel, G.M. Marsden CD. Neurology in Clinical Practice.</p>	
8.	perinatal diagnosis. Cordocentesis. Amniocentesis. Laboratory diagnostic methods.	Abstract, presentation. Mulyah preparation.	<p>1.Brazis, P.W. Masdeu, JC, Biller, J. Localization in Clinical Neurology. 7th edition</p> <p>2. Glick, T. Neurologic skills: examination and diagnosis</p> <p>3. Rowland, L. Merritt's Textbook of Neurology.</p> <p>4. Adams, R. Victor, M. Ropper, A. Principles of Neurology</p> <p>5 Biller J. Practical Neurology</p> <p>6 Bradley, W.G. Daroff, R.B. Fenichel, G.M. Marsden CD. Neurology in Clinical Practice.</p>	7
9.	peroxisomal diseases.	Abstract, presentation, report preparation.	<p>1.Brazis, P.W. Masdeu, JC, Biller, J. Localization in Clinical Neurology. 7th edition</p>	7



			<p>2. Glick, T. Neurologic skills: examination and diagnosis</p> <p>3. Rowland, L. Merritt's Textbook of Neurology.</p> <p>4. Adams, R. Victor, M. Ropper, A. Principles of Neurology</p> <p>5 Biller J. Practical Neurology</p> <p>6 Bradley, W.G. Daroff, R.B. Fenichel, G.M. Marsden CD. Neurology in Clinical Practice.</p>	
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### 1.4.3. Evaluative Assessment Tools

#### Current and milestone (modular) control

*Current control of students' knowledge* represents:


oral questioning;  
solving situational tasks;  
assessment of the development of practical skills on dummies;  
control task; test;  
checking the completion of written homework;  
checking abstracts, reports, presentations.

#### Abstract topics:

1. Cognitive Impairment Correlates with Neurodegeneration
2. Challenges and strategies for managing migraine and medication overuse
3. Diagnosis, prevention and novel treatment options in different dementias
4. Enhancing brain through Deep brain stimulation
5. Changes in the cerebrospinal fluid and differential diagnosis of diseases that cause them
6. Clinical and neurophysiological methods for studying the nervous system
7. Fragile X-associated Tremor/Ataxia Syndrome
8. The role of hormones for the nervous system
9. The neuropsychology of language
10. Thrombectomy in patients with stroke
11. Use of Botulinum Neurotoxin in Neurological disorders
12. Neurogenic Bladder
13. Polyneuropathic syndrome
14. Calcitonin gene-related peptide monoclonal antibodies for migraine prevention.

#### COURSE POLICY AND EVALUATION CRITERIA:

Type of control (current, milestone, final)	Control form	Assessment of learning outcomes
Attendance	For one missed lesson minus 2 points	20 points
Current control	Oral survey, written work	20 points
IWS+IWW	Performing assignments, work with literature	20 points
Milestone control (modul submission)	Testing, control tasks	40 points

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Final control (differential test)	Conversation, examination (test.edu.kg)	100 points
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<b>Scale of correspondence between grades and scores on the final control (exam)</b>	
<b>Score</b>	<b>Grade</b>
90-100	«excellent»
76-89	«good»
60-75	«satisfactory»
0-59	«unsatisfactory»