INFORMATION ABOUT THE COURSE

Neurology

1. Basic information

Field of studies field of medical and health sciences, discipline: medical sciences **Unit responsible for the field of studies** Faculty of Medicine Bydgoszcz University of Science and Technology **Level of studies** Uniform master's studies **Profile of studies** General academic **Form of studies** Full-time	**Studies cycle** …….. **Course code** 17-EMS-NEU-SP2 **Language** English **Obligatory** Yes

Prerequisites	Knowledge of anatomy, physiology, pathophysiology, microbiology, laboratory diagnostics, and pharmacology. Verification method: Passing the introductory courses is equivalent to meeting the prerequisites for the course.
Introductory courses	Physiology with elements of clinical physiology, Pathophysiology, Laboratory diagnostics, Pharmacology with toxicology, Clinical pharmacology, Microbiology
Coordinator	Anna Kloska, PhD

Study period	**Form of assessment** **Form and hours of classes**	**ECTS credits**
Summer semester	Exam Lecture 30h Exercise 30h Simulation exercise 10h Seminar 15h	6.0

2. Learning outcomes

Code	**Description of learning outcomes**	**Learning outcomes reference**
Knowledge (student knows and understands):		
K1	The graduate knows and understands basic neurological symptom complexes.	E.W15.
K2	The graduate knows and understands the environmental and epidemiological conditions, causes, symptoms, principles of diagnosis and therapeutic management of the most common neurological diseases and their complications: 1) headaches, including migraines, tension headaches and headache syndromes, and trigeminal neuralgia; 2) cerebrovascular diseases, in particular stroke; 3) epilepsy; 4) infections of the nervous system, in particular meningitis, Lyme disease, herpes encephalitis, neurotransmission diseases; 5) dementia, in particular Alzheimer's disease, frontal dementia, vascular	E.W16.

	dementia, and other dementia syndromes; 6) diseases of the basal ganglia, in particular Parkinson's disease; 7) demyelinating diseases, in particular multiple sclerosis; 8) neuromuscular diseases, in particular amyotrophic lateral sclerosis, sciatica, compressive neuropathies; 9) craniocerebral injuries, in particular concussion; 10) neoplasms.	
K3	The graduate knows and understands the symptoms and progression of neurological diseases.	O.W2.
K4	The graduate knows and understands diagnostic and therapeutic procedures appropriate for specific medical conditions.	O.W3.
K5	The graduate knows and understands the methods of conducting scientific research.	O.W5.
Abilities (student can do/perform):		
A1	The graduate is able to perform a complete and targeted neurological examination of an adult, adapted to a specific clinical situation.	E.U5.
A2	The graduate is able to recognize conditions requiring hospital treatment.	E.U.12.
A3	The graduate is able to declare a patient death.	E.U16.
A4	The graduate is able to maintain patient medical records, including in electronic form, in accordance with legal regulations.	E.U18.
A5	The graduate is able to provide patient health education tailored to individual needs.	E.U21.
A6	The graduate is able to apply the principles of providing feedback (constructive, non-judgmental, descriptive) within the framework of teamwork.	E.U30.
A7	The graduate is able to obtain information from team members while respecting their diverse opinions and specialist competences, and to take this information into account in the patient's diagnostic and therapeutic plan.	E.U32.
A8	The graduate is able to discuss the patient's situation in a team, excluding subjective assessments and respecting the patient's dignity.	E.U33.
A9	The graduates is able to recognize medical problems and determine priorities in medical treatment.	O.U1.
A10	The graduates is able to recognize life-threatening conditions that require immediate medical intervention.	O.U2.
A11	The graduate is able to plan diagnostic procedures and interpret their results.	O.U3.
A12	The graduate is able to implement appropriate and safe therapeutic procedures and predict their effects.	O.U4.
A13	The graduate is able to plan their own educational activities and continuously improve their skills in order to update their knowledge.	O.U5.

A14	The graduates is able to communicate with patients and their families in an atmosphere of trust, taking into account the needs of the patient, and convey unfavorable information using the principles of professional communication.	O.U7.
Social skills (the student is ready to):		
S1	The graduate is ready to draw conclusions from their own measurements or observations.	O.K8.
S2	The graduate is prepared to implement the principles of professional collegiality and teamwork, including with representatives of other medical professions, also in a multicultural and multinational environment.	O.K9.

3. Programme contents

No.	Programme contents	Form of studies	Learning outcomes covered by the programme content
1	1. Structural basis of nervous system function. 2. Developmental disorders of the nervous system, pyramidal damage syndromes (cortical, capsular, brainstem, spinal). 3. Elements of neuropediatrics: cerebral palsy, congenital defects of the nervous system. 4. Frontal, parietal, temporal, and occipital lobe damage syndromes. 5. Extrapyramidal syndromes: Parkinsonism, Huntington's chorea, dystonia. 6. Headaches, i.e. idiopathic (migraine, common vasomotor headache) and symptomatic (syndromes of increased intracranial pressure). Diagnosis of intracranial growth processes. 7. Vascular diseases of the brain and spinal cord. 8. Dementia syndromes: Alzheimer's disease, vascular dementia, alcoholic encephalopathy, reversible dementia. 9. Demyelinating diseases, with particular emphasis on the diagnosis and advances in the treatment of multiple sclerosis. 10. Epilepsy — classification, diagnosis, and treatment. Consciousness disorders, criteria for brain death. 11. Basic neuromuscular diseases: clinical and electrophysiological diagnosis, treatment. 12. Higher nervous function disorders; aphasia, agnosia, apraxia. 13. Emotional and memory system, autonomic disorders.	Lecture	K1, K2, K3, K4, K5
2	1. Neurological interview, examination of the head, cranial nerves I, II, III, IV, and VI. 2. Examination of cranial nerves V, VII, VIII, cerebellopontine angle syndrome, systemic and non-systemic vertigo. 3. Bulbar nerves (IX, X, XI, XII), bulbar and pseudobulbar syndrome. 4. Examination of the limbs, trunk, meningeal and radicular symptoms.	Exercise, Simulation exercise	A1, A2, A3, A4, A5, A6, A7, A8, A9, A10, A11, A12, A13, A14, S1, S2

	5. Examination of higher nervous functions: apraxia, aphasia, agnosia. Examination of an unconscious patient, coma, brain death. 6. Symptoms of damage to the central and peripheral motor neuron, brain stem, and spinal cord: alternating syndromes, vertical localization of spinal cord damage, syndromes of transverse spinal cord damage, and sensory disorders. 7. Cerebellar and extrapyramidal syndrome. 8. Auxiliary examinations in neurology: a) neuroelectrophysiological diagnostics (EEG, EMG, PW, ENG) b) cerebrospinal fluid diagnostics c) imaging methods of the nervous system (X-ray, CT, MRI, fMRI, PET, SPECT) d) vascular diagnostics (Doppler, CT angiography, MRI angiography) e) neuropathological examinations		
3	1. Demyelinating diseases. 2. Vascular diseases of the nervous system. 3. Brain and spinal cord tumors, headaches. 4. Epilepsy, dementia syndromes, Alzheimer's disease. 5. Meningitis and encephalitis, AIDS — neurological manifestations. 6. Degenerative diseases of the nervous system (Parkinson's disease, Alzheimer's disease, MSA). 7. Diseases of the roots, plexuses, and peripheral nerves, myopathies, and neuromuscular junction disorders. 8. Early and late consequences of craniocerebral injuries.	Seminar	K1, K2, K3, K4, K5, S1, S2
4	Communication with a patient – 2h	Seminar, Exercise	A14

4. Methods of verifying and assessing the learning outcomes achieved by the student

Winter semester

Form of studies		
Lecture	**Methods of studies form:**	
	Lecture	
	Methods of verification:	**Involvement:**
	Written exam	100%
	Conditions for passing the course:	
	The condition for passing the course is obtaining a positive grade on the written exam. The exam will be in the form of a single-choice test (50 questions). The test will cover topics discussed during the lectures.Passing conditions: obtaining a minimum grade of satisfactory (3.0), after obtaining a number of points corresponding to > 60%.	
Exercise	**Methods of studies form:**	
	Discussion, Case study	
	Methods of verification:	**Involvement:**

	Case study	80%
	Observation	20%
	Conditions for passing the course:	
	Practical assessment including a case study. Task consisting of testing practical skills.	
Simulation exercise	**Methods of studies form:**	
	Discussion, Case study	
	Methods of verification:	**Involvement:**
	Completion of a final exercise in the form of a simulation exercise	80%
	Observation	20%
	Conditions for passing the course:	
	The condition for passing the simulation exercises is obtaining a positive grade from the final exercise in the form of performing the assigned medical procedures during the simulation exercises. This exercise will be carried out on phantoms. The assessment also includes observation of the student's work.	
Seminar	**Methods of studies form:**	
	Discussion, Showcase, Group work, problem-based learning	
	Methods of verification:	**Involvement:**
	Presentation	50%
	Review	30%
	Activity	20%
	Conditions for passing the course:	
	The prerequisite for passing the seminar is attendance and active participation in classes.	

Learning outcomes	**Methods of verification**						
	Written exam	Case study	Observation	Completion of a final exercise in the form of a simulation exercise	Presentation	Activity	Review
K1	X				X	X	X
K2	X				X	X	X
K3	X				X	X	X
K4	X				X	X	X
K5	x				x	x	x
A1		X	X	X			

A2		X	X	X			
A3		X	X	X			
A4		X	X	X			
A5		X	X	X			
A6		X	X	X			
A7		X	X	X			
A8		X	X	X			
A9		X	X	X			
A10		X	X	X			
A11		X	X	X			
A12		X	X	X			
A13		X	X	X			
A14		x	x	x			
S1					x	X	x
S2						X	

5. Student workload – balance of hours and ECTS credits

Students activity		**Student workload Number of hours**
Classes conducted with the direct participation of an academic teacher or other persons conducting classes	Lecture	30
	Exercise	30
	Simulation exercise	10
	Seminar	15
Student's own work	Preparing for classes	15
	Studying literature	10
	Preparation of a presentation	10
	Collection of information to a given topic	10
	Preparing for an exam	20
Total student workload		150
ECTS		6

One (teaching) hour is 45 minutes.

6. Literature

The list of required and recommended literature will be provided by the lecturer at the first meeting.