

DESCRIPTION OF THE COURSE OF STUDY

Course code	0912-7LEK-C6.12-N	
Name of the course in	Polish	Neurochirurgia
	English	Neurosurgery

1. LOCATION OF THE COURSE OF STUDY WITHIN THE SYSTEM OF STUDIES

1.1. Field of study	medicine
1.2. Mode of study	Full-time
1.3. Level of study	Uniform Master's studies
1.4. Profile of study*	Practical
1.5. Person preparing the course description	Jaroslav Andrychowski MD PhD D Sc Profesor JKU
1.6. Contact	

2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

2.1. Language of instruction	English
2.2. Prerequisites*	Anatomy, Physiology, Surgery

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes	LECTURE: 15, CLASSES -15, PRACTICAL CLASSES 15	
3.2. Place of classes	Lecture – Classes in classrooms of JKU Classes- Department of Neurosurgery of Regional Hospital (WSZ) in Kielce	
3.3. Form of assessment	LECTURE – E, CLASSES – Credit with grade	
3.4. Teaching methods	seminar lecture, discussion, case study in natural conditions.	
3.5. Bibliography	Required reading	1.Handbook of Neurosurgery By (author) Mark S. Greenberg 1784 pages 23 Oct 2019 Publisher Thieme Medical Publishers Inc, 2.Neurosurgery Fundamentals, Nitin Agarwal 432pp Thieme Medical Publishers Inc November 2018
	Further reading	1. YOUMANS AND WINN NEUROLOGICAL SURGERY, 4-VOLUME SET, 7TH EDITION 2016 2. Benzel's Spine Surgery 2-Volume Set, 4th Edition Techniques, Complication Avoidance and Management Author Michael P Steinmetz & Edward C. Benzel Date of Publication: September 2016 3. Practical Neurosurgery Chandrashekhar Deopujari, Vedantam Rajshekhar, Sanjay Behari, Natarajan Muthukumar 528pp Thieme Medical Publishers: 06. November 2019 Historical position 1. Bidziński J. (red.): Neurochirurgia. Wydawnictwo Lekarskie PZWL, Warszawa 1981. First book for Neurosurgery in Poland (in Polish)

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES

4.1 Course objectives (including form of classes)

- C1. Obtaining knowledge on modern clinical neurosurgery, contemporary pediatric and adult neurosurgery via theoretical and practical classes
- C2. Preparation for examination and clinical evaluation of neurosurgical patient, identification of diseases which cause direct risk of life. Planning diagnostic procedures. Development of decisions making process in neurosurgery.
- C3. Conservative treatment and patient monitoring policies before operative treatment.
- C4. Principles of interdisciplinary cooperation. Consulting other departments, clinical cooperation. Neurosurgical supervision of other hospitals.

4.2. Detailed syllabus (including form of classes)

Lectures

1. History of neurosurgery in Poland and development of global neurosurgery
2. Life-threatening diseases in neurosurgical clinic. Assessment of consciousness and handling unconscious patients.
3. Intracranial, brain and spinal canal tumors – classification, characteristics, and clinical symptoms.
4. Contemporary diagnostic of intracranial and spinal canal tumors. Operative treatment. Skull base surgery.
5. Neurosurgical monitoring techniques. Operations of tumors in functional areas. Radiosurgery, Stereotactic, Gamma knife and Cyber knife.
6. Vascular diseases of central nervous system – symptoms, diagnostics. Subarachnoid bleeding and intracerebral bleeding – cause, diagnostics, microsurgery, interventional radiology and radiosurgery.
7. Intracranial aneurysms- treatment. Intracranial and intramedullary angiomas - treatment
8. Rare vascular diseases Dural- arterio- venous fistula. Insufficiency of cerebral circulation. Cerebral bypass.
9. Common congenital disorders – neurosurgical diagnosis and treatment.
10. Head injuries, central nervous system injuries. Differences in injuries in children and adults.
11. Spine and spinal cord trauma. Differences in injuries in children and adults.
12. Spine degenerative diseases. Intervertebral disc disease – diagnosis, qualification for treatment. Neurosurgical treatment depending on the symptoms and course of the disease.
13. Peripheral nerves: Tumors, entrapment syndrome, injuries. Symptoms, diagnosis and treatment.
14. Parkinsonism and other extrapyramidal diseases – contemporary neurosurgical procedures – deep brain stimulation, neuromodulation.
15. Pain management. Stimulation. Radiosurgery. Robotics in neurosurgery.

Practical activities

1. Anatomy of nervous system; brain, spinal cord, peripheral nervous system
2. Patient consciousness assessment score. Neurological examination. Clinical management of unconscious patient.
3. Diagnosing nervous system disorders - diagnostic techniques. Invasive Diagnostics. Not Invasive Diagnostics. MRI, CT, vascular examinations, ophthalmology in neurosurgery.
4. Diagnostic techniques and clinical interpretation CT scan, MRI, Angiography, Neurophysiology SEP, MEP, EMG, Neurography of peripheral nerves.
5. Intracranial pressure - physiology and pathology. Intracranial pressure monitoring (ICP) and clinical application
6. Brain (cerebral) edema. Diagnostics, management, clinical application, high intracranial pressure monitoring and treatment. Barbiturate coma therapy.
7. Conservative and surgical treatment in neurosurgery. Therapeutic decision-making process.
8. Micro-surgical techniques in neurosurgery. Minimally invasive procedures. Micro instruments. Neurosurgical technology. Microscopes. Intraoperative monitoring
9. Post-operative care in neurosurgery. Outpatient care.
10. Observation of operational procedures with clinical and medical follow-up comments.

4.3 Intended learning outcomes

Code	A student, who passed the course	Relation to learning outcomes
within the scope of KNOWLEDGE :		
W01	knows environmental and epidemiological conditions for the most common diseases;	E.W1.
W02	knows and distinguishes basic neurological syndromes;	E.W13.
W03	knows and understand the causes, symptoms, principles of diagnosis and therapeutic management of the most common diseases of the nervous system, including: <ul style="list-style-type: none"> a) headaches: migraine, tension headaches and bands headaches and trigeminal neuralgia of nerve V; b) vascular diseases of the brain, in particular the stroke; c) epilepsy; d) infection of the nervous system, in particular meningitis, Lyme disease, HSV encephalitis, neurotransmitter disorders; e) dementia, in particular in Alzheimer's disease, frontotemporal dementia, vascular dementia, and other types of dementia; f) diseases of the basal ganglia, in particular Parkinson's disease; g) demyelinating diseases, in particular multiple sclerosis; h) diseases of the neuromuscular system, in particular amyotrophic lateral sclerosis and sciatica; i) cranio-cerebral trauma, in particular concussion; 	E.W14.
within the scope of ABILITIES :		
U01	conducts full and targeted physical examination of the adult patient;	E.U3.
U02	conducts indicative study of hearing and sight as well as the otoscopic examination;	E.U6.
U03	assesses patient's general condition, consciousness and awareness;	E.U7.
U04	performs differential diagnosis of the most common diseases in adults and children	E.U12.
U05	assesses and describes the somatic and mental state of patients;	E.U13.
U06	recognizes states of a direct threat to life;	E.U14.
U07	plans diagnostic, therapeutic and preventive procedures;	E.U16.
U08	conducts analysis of the potential side effects of each drug and the interaction between them;	E.U17.
U09	qualifies the patient for home treatment and hospitalization;	E.U20.
U10	defines states in which functional status of the patient's or his/her preferences restrict the treatment in accordance with specific guidelines for the disease;	E.U21.
U11	interprets laboratory tests/results and identifies the reasons for deviations;	E.U24.
U12	assists when the following procedures and medical treatments are performed: <ul style="list-style-type: none"> a) transfusions of blood and blood products, b) drainage of the pleural cavity, c) puncture of the pericardium, d) puncture of the peritoneal cavity, e) lumbar puncture, f) needle biopsy, g) epidermal tests, h) intradermal and scarification tests and interpret their results; 	E.U30.
U13	plans specialist consultations;	E.U32.
U14	evaluates decubitus and applies appropriate dressings;	E.U35.
U15	complies with the aseptic and antiseptic rules;	F.U3.

4.4. Methods of assessment of the intended learning outcomes							
Teaching outcomes (code)	Method of assessment (+/-)						
	Exam oral/written			Test*			Others
	<i>Form of classes</i>			<i>Form of classes</i>			<i>Form of classes</i>
	<i>L</i>	<i>C</i>		<i>L</i>	<i>C</i>	<i>Practical classes</i>	<i>L/CPactical classes</i>
W01	+						
W02	+						
W03	+						
U01					+	+	
U02					+	+	
U03					+	+	
U04					+	+	
U05					+	+	
U06					+	+	
U07					+	+	
U08					+	+	
U09					+	+	
U10					+	+	
U11					+	+	
U12					+	+	
U13					+	+	
U14					+	+	
U15					+	+	

Criteria of assessment of the intended learning outcomes		
Form of classes	Grade	Criterion of assessment
lecture (L)	3	Test results 61-68%
	3,5	Test results 69-76%
	4	Test results 77-84%
	4,5	Test results 85-92%
	5	Test results 93-100%
Classes (C)*	3	Mastering the content of the curriculum at the basic level, chaotic answers, leading questions necessary.
	3,5	Mastering the content of the curriculum at the basic level, systematized answers, requires the help of a teacher.
	4	Mastering the content of the curriculum at the basic level, systematized and independent answers. Problem solving in typical situations.
	4,5	The scope of the presented knowledge goes beyond the basic level based on the supplementary literature provided. Problem solving in new and complex situations.
	5	The scope of the presented knowledge goes beyond the basic level based on self-acquired scientific sources of information.
Practical classes*	3	Mastering the content of the curriculum at the basic level, chaotic answers, necessary leading questions.
	3,5	Mastering the content of the curriculum at the basic level, systematized answers, requires the help of a teacher.
	4	Mastering the content of the curriculum at the basic level, systematized and independent answers. Problem solving in typical situations.
	4,5	The scope of the presented knowledge goes beyond the basic level based on the supplementary literature provided. Problem solving in new and complex situations.
	5	The scope of the presented knowledge goes beyond the basic level based on self-acquired scientific sources of information.

5. BALANCE OF ECTS CREDITS – STUDENT’S WORK INPUT

Category	Student's workload
	Full-time
NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT HOURS/	45
<i>Participation in lectures*</i>	12
<i>Participation in classes, seminars, laboratories*</i>	30
<i>Preparation in the exam/ final test*</i>	
<i>Others*</i>	
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/	5
<i>Preparation for the lecture*</i>	5
<i>Preparation for the classes, seminars, laboratories*</i>	
<i>Preparation for the exam/test*</i>	
<i>Gathering materials for the project/Internet query*</i>	
<i>Preparation of multimedia presentation</i>	
<i>Others (please specify e.g. e-learning)*</i>	
TOTAL NUMBER OF HOURS	50
ECTS credits for the course of study	2

**delete as appropriate*

Accepted for execution (date and legible signatures of the teachers running the course in the given academic year)

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