

Concerning the cycle of education **2025-2031**  
Academic year 2028/2029

**1.1. BASIC INFORMATION CONCERNING THIS SUBJECT / MODULE**

|                                            |                                                                       |
|--------------------------------------------|-----------------------------------------------------------------------|
| Subject / Module                           | Neurology                                                             |
| Course code / module *                     | N/E                                                                   |
| Faculty of (name of the leading direction) | Faculty of Medicine, University of Rzeszow                            |
| Department Name                            | Faculty of Medicine, University of Rzeszow                            |
| Field of study                             | Medicine                                                              |
| Level of education                         | Uniform Master's Degree Studies                                       |
| Profile                                    | General academic                                                      |
| Form of study                              | Stationary / non-stationary                                           |
| Year and semester                          | Year IV, semester 7 and 8                                             |
| Type of course                             | Obligatory                                                            |
| Coordinator                                | Prof. Bartosik-Psujek                                                 |
| First and Last Name of the Teacher         | Prof. Bartosik-Psujek<br>Marcin Wiącek, MD<br>Bartosz Sieczkowski, MD |

\* - According to the resolutions of the Faculty of Medicine

**1.2. Forms of classes, number of hours and ECTS**

| Semester No | Lecture | Classes | Conversation | Laboratory | Seminar | Practical | Self-learning | Number of points ECTS |
|-------------|---------|---------|--------------|------------|---------|-----------|---------------|-----------------------|
| 7           | 15      | 30      | -            | -          | -       | -         | -             | 3                     |
| 8           | 15      | 25      |              |            |         |           |               | 2                     |

**1.3. The form of class activities**

☒ classes are in the traditional form

☐ classes are implemented using methods and techniques of distance learning

**1.4. Examination Forms / module (exam, credit with grade or credit without grade)**

## 2. REQUIREMENTS

Knowledge of the anatomy of the nervous system.  
Knowledge of the physiology of the nervous system.

## 3. OBJECTIVES, OUTCOMES, AND PROGRAM CONTENT USED IN TEACHING METHODS

### 3.1. Objectives of this course/module

|                |                                                                                                                                                                                                                                                                                        |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C <sub>1</sub> | Mastering theoretical knowledge and practical skills regarding the location and symptomatology of diseases of the central and peripheral nervous system.                                                                                                                               |
| C <sub>2</sub> | Familiarization with the specificity of diagnosis and treatment of the most common neurological diseases of children and adults (management of vascular, neoplastic diseases, inflammatory, degenerative spine, craniocerebral injuries and spinal cord and congenital malformations). |
| C <sub>3</sub> | Shaping the ability to carry out subjective and objective examination of a patient with a neurological disease.                                                                                                                                                                        |

### 3.2. OUTCOMES FOR THE COURSE / MODULE (TO BE COMPLETED BY THE COORDINATOR)

| EK (the effect of education) | The content of the learning effect defined for the subject (module)                                                                                                                                                                                                                                                                                                                                                                       | Reference to directional effects (KEK) |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| EK_01                        | He knows and can distinguish between the basic sets of neurological symptoms                                                                                                                                                                                                                                                                                                                                                              | E. W13.                                |
| EK_02                        | Knows and understands the causes, symptoms, principles of diagnosis and therapeutic treatment in the most common diseases of the nervous system, including:<br>a) headaches: migraines, tension headaches and headache syndromes, as well as neuralgia of the nerve V,<br>b) cerebrovascular diseases, in particular cerebral infarction,<br>c) epilepsy,<br>d) infections of the nervous system, in particular meningitis, Lyme disease, | E.W.14                                 |

|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |        |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|       | <p>herpetic encephalitis, neurotransmission diseases,</p> <p>e) dementia, in particular Alzheimer's disease, frontal dementia, vascular dementia and other</p> <p>dementia syndromes,</p> <p>f) diseases of the basal ganglia, in particular Parkinson's disease,</p> <p>g) demyelinating diseases, in particular multiple sclerosis,</p> <p>h) diseases of the neuromuscular system, in particular amyotrophic lateral sclerosis and sciatica,</p> <p>i) cranial-cerebral injuries, in particular concussion.</p> |        |
| EK_03 | Performs a full and targeted physical examination of an adult patient.                                                                                                                                                                                                                                                                                                                                                                                                                                             | E. U3. |
| EK_04 | Carries out an indicative examination of hearing and visual field as well as an otoscopic examination.                                                                                                                                                                                                                                                                                                                                                                                                             | E. U6. |
| EK_05 | Evaluates the general condition, the state of consciousness and awareness of the patient.                                                                                                                                                                                                                                                                                                                                                                                                                          | E. U7. |
| EK_06 | He is able to establish and maintain a deep and respectful contact with the patient                                                                                                                                                                                                                                                                                                                                                                                                                                | K.01   |

### 3.3. CONTENT CURRICULUM

#### A. Lectures

| <b>Course contents – semester 7</b>                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------|
| Clinical neuroanatomy. Neurological syndromes. Neurological examination. Discussing the scales and tests used in neurology. |
| Stroke. Definition and symptoms. Brain circulation. Risk factors. Acute phase management. Role of the Stroke Unit.          |
| Disturbance of consciousness. Coma and confusional states.                                                                  |
| Demyelinating diseases.                                                                                                     |
| Disorders of Equilibrium                                                                                                    |

| <b>Course contents – semester 8</b>                 |
|-----------------------------------------------------|
| Headache and Facial Pain. Discopathy and back pain. |

|                                  |
|----------------------------------|
| Movement disorders               |
| Seizures and syncope             |
| Neuromuscular diseases.          |
| Dementia and Amnestic disorders. |

## B. Classes

| <b>Course contents – semester 7</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Clinical features and differentiation of selected patterns of nervous system damage.</p> <ul style="list-style-type: none"> <li>• Brain damage syndromes, e.g.: hemispheric syndrome, Pseudobulbar palsy, Internuclear ophthalmoplegia, brain stem syndromes, locked-in syndrome, encephalopathy</li> <li>• Cerebellum syndrome.</li> <li>• Myelopathy, e.g.: Brown-Séquard syndrome, the conus medullaris syndrome, posterior spinal cord syndrome, anterior spinal cord syndrome</li> <li>• Myopathy.</li> <li>• Peripheral nerve lesions: e.g. Polyneuropathy, mononeuropathy, radiculopathy, Cauda equina syndrome</li> <li>• The pyramidal tracts damage: localization of the lesion based on clinical symptoms</li> <li>• Sensory tracts damage: localization of the lesion based on clinical symptoms</li> </ul> |
| <p>Neurological examination, subjective and objective examination. Discussing the conclusions of the neurological examination.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <p>Additional tests (laboratory, electrophysiological, radiological and imaging). Cerebrospinal fluid examination, electroencephalography, electromyography, contrast radiological examination, computed tomography, magnetic resonance imaging, PET, SPCT, Doppler ultrasound.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <p>Clinical neuroanatomy:</p> <ul style="list-style-type: none"> <li>• Disturbance of consciousness,</li> <li>• Cortical syndromes e.g. aphasia, Hemispatial neglect, Apraxia</li> <li>• Visual disturbance: localization of the lesion based on vision deficit</li> <li>• Dysarthria, dysphagia</li> <li>• Paresis: e.g. hemiparesis, tetraparesis</li> <li>• Sensory deficit types</li> <li>• Disorders of Equilibrium</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                        |
| <p>Vertigo - Differential diagnosis and management of dizziness.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

Headache, facial pain and back pain.  
Types of pain. Classification of headaches according to the WHO International Headache Association. Primary and secondary headaches. Different back pain causes „Red flag“ symptoms

|                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Course contents – semester 8</b>                                                                                                        |
| Neurovascular diseases.                                                                                                                    |
| Epilepsy. International classification of epileptic seizures. Emergency treatment of epileptic seizures                                    |
| Demyelinating diseases. Multiple sclerosis, optic neuritis, neuromyelitis optica, other demyelinating diseases.                            |
| Movement disorders.                                                                                                                        |
| Disturbance of consciousness. Cognitive functions. Dementia. Alzheimer's disease. Dementia with Lewy bodies, and fronto-temporal dementia. |
| Neuroinfectious diseases.                                                                                                                  |
| Neuro-oncology                                                                                                                             |
| Neuromuscular diseases                                                                                                                     |

### 3.4. TEACHING METHODS

**Lecture:** multimedia presentation.

**Classes :** practical exercises, demonstration, lecture form.

**Student's own work:** working with a book, preparing for classes and preparing for the test and exam

## 4. METHODS AND EVALUATION CRITERIA

### 4.1 Methods of verification of learning outcomes

| Symbol of effect | Methods of assessment of learning outcomes (Eg.: tests, oral exams, written exams, project reports, observations during classes) | Form of classes |
|------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------|
| EK_01,<br>EK_02  | Written test                                                                                                                     | Lecture         |
| EK_03,<br>EK_04, | Observation during classes                                                                                                       | Classes         |

|                 |  |  |
|-----------------|--|--|
| EK_o5,<br>EK_o6 |  |  |
|-----------------|--|--|

#### 4.2. Conditions for completing the course (evaluation criteria)

| Semester 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Obligatory and active participation in the classes</li> <li>2. Obligatory participation in the lectures</li> <li>3. Positive assesment of the written test</li> </ol> <p>Written test evaluation criteria:</p> <p>5.0 - has knowledge of each of the contents of education at the level of 90% -100%</p> <p>4.5 - has knowledge of each of the content of education at the level of 84% -89%</p> <p>4.0 - has knowledge of each of the content of education at the level of 77% -83%</p> <p>3.5 - has knowledge of each of the content of education at the level of 70% -76%</p> <p>3.0 - has knowledge of each of the content of education at the level of 60% -69%</p> <p>2.0 - has knowledge of each of the contents of education below 60%</p> |

| Semester 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>4. Obligatory and active participation in the classes</li> <li>5. Obligatory participation in the lectures</li> <li>6. Positive assesment of the written test</li> </ol> <p>Written test evaluation criteria:</p> <p>5.0 - has knowledge of each of the contents of education at the level of 90% -100%</p> <p>4.5 - has knowledge of each of the content of education at the level of 84% -89%</p> <p>4.0 - has knowledge of each of the content of education at the level of 77% -83%</p> <p>3.5 - has knowledge of each of the content of education at the level of 70% -76%</p> <p>3.0 - has knowledge of each of the content of education at the level of 60% -69%</p> <p>2.0 - has knowledge of each of the contents of education below 60%</p> |

## 5.Total student workload required to achieve the desired result in hours and ECTS credits

| Activity                                            | Hours / student work |
|-----------------------------------------------------|----------------------|
| Hours of classes according to plan with the teacher | 85                   |
| Preparation for classes                             | 35                   |
| Participation in the consultations and in colloquia | 5                    |
| The time to write a paper / essay                   |                      |
| Preparation for tests                               | 25                   |
| Other (e-learning)                                  | -                    |
| SUM OF HOURS                                        | <b>150</b>           |
| TOTAL NUMBER OF ECTS                                | <b>5</b>             |

## 6.TRAINING PRACTICES IN THE SUBJECT / MODUL

|                                   |   |
|-----------------------------------|---|
| Number of hours                   | - |
| Rules and forms of apprenticeship | - |

## 7. LITERATURE

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>COMPULSORY LITERATURE:</b></p> <ol style="list-style-type: none"> <li>1. Aaron L. Berkowitz. <i>Lange Clinical Neurology and Neuroanatomy: A Localization-Based Approach</i>, McGraw-Hill Education/Medical, 2017.</li> <li>2. Geraint Fuller. <i>Neurological Examination Made Easy</i>. Elsevier, 2019.</li> <li>3. David Greenberg, Michael J. Aminoff, Roger P. Simon. <i>Lange Clinical Neurology</i>. McGraw-Hill, 2020.</li> </ol>                                                                                                       |
| <p><b>Complementary literature:</b></p> <ol style="list-style-type: none"> <li>1. I. E. Scheffer et al. <i>ILAE classification of the epilepsies: Position paper of the ILAE Commission for Classification and Terminology</i>. <i>Epilepsia</i>, 58(4):512–521, 2017</li> <li>2. Powers WJ, Rabinstein AA, Ackerson T, Adeoye OM, Bambakidis NC, Becker K, Biller J, Brown M, Demaerschalk BM, Hoh B, Jauch EC, Kidwell CS, Leslie-Mazwi TM, Ovbiagele B, Scott PA, Sheth KN, Southerland AM, Summers DV, Tirschwell DL; on behalf of the</li> </ol> |

American Heart Association Stroke Council. Guidelines for the early management of patients with acute ischemic stroke: 2019 update to the 2018 guidelines for the early management of acute ischemic stroke: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke*. 2019;50:e344–e418 doi: 10.1161/STR.000000000000211.

3. Thompson AJ, Banwell BL, Barkhof F, i wsp. *Diagnosis of multiple sclerosis: 2017 revisions of the McDonald criteria*, The Lancet Neurology 2017;17:162–173.
4. P.A. Young, P.H. Young, D.L. Tolbert. *Basic Clinical Neuroscience*. LWW 2015
5. Duane E. Haines PhD. *Neuroanatomy Atlas in Clinical Context: Structures, Sections, Systems, and Syndromes 10th Edition*. LWW. 2018.

Acceptance Unit Manager or authorized person