

**DESCRIPTION OF COURSE UNIT FOR DOCTORAL STUDIES  
AT VILNIUS UNIVERSITY**

<b>Scientific Area/eas, Field/ds of Science</b>	Medical and Health Sciences (M 000): Medicine (M 001)			
<b>Faculty, Institute, Department/Clinic</b>	Faculty of Medicine Institute of Clinical Medicine Clinic of Children's Diseases			
<b>Course unit title</b> (ECTS credits, hours)	<b>Paediatric Neurology</b> 7,5 credits (202 hours)			
<b>Study method</b>	<b>Lectures</b>	<b>Seminars</b>	<b>Consultations</b>	<b>Self-study</b>
Number of ECTS credits	-	0,5	0,5	6,5
<b>Method of the assessment</b> (in 10 point system)	Oral exam with 3 theoretical questions and one clinical situation			
<b>PURPOSE OF THE COURSE UNIT</b>				
Gain knowledge about paediatric neurologic examination and neurodevelopment of children of all ages, neurologic diseases in children, their epidemiology, etiopathogenesis, clinic, diagnostics, nervous system investigation methods, treatment, rehabilitation and prevention, outpatient and inpatient neurological services organization in Lithuania.				
<b>THE MAIN TOPICS OF COURSE UNIT</b>				
<p><b>Clinical neurologic examination, neuroanatomy and lesion localization, investigation methods of nervous system.</b></p> <p><b>Congenital anomalies of the nervous system and surrounding structures.</b> Etiology, clinical manifestation, diagnosis, treatment, prognosis and prevention. Neural tube closure defects. Disorders of neuronal proliferation, migration and brain formation. Skull and vertebral malformations. Cerebrovascular malformations of the brain and spinal cord.</p> <p><b>Neurocutaneous diseases and syndromes</b> (phakomatoses): etiopathogenesis, clinic, diagnosis and diagnostic criteria, treatment and outcome. Neurofibromatosis, tuberous sclerosis, ataxia - telangiectasia, Sturge - Weber syndrome, Klippel - Trenauney syndrome, Von - Hippel - Lindau disease, Incontinence pigment, Ito hypomelanosis.</p> <p><b>Common neurogenetic syndromes.</b> Down, Patau, Edwards, Prader-Willi, Angelman, Di George, Fragile X chromosome, Rett syndrome and others.</p> <p><b>Hereditary neurometabolic diseases.</b> Diseases of amino acid metabolism disorders. Defects in the metabolism of neurotransmitters, metals and hormones. Lysosomal and peroxisomal diseases. Defects in carbohydrate metabolism, ketogenesis and ketolysis. Mitochondrial diseases.</p> <p><b>Neurodegenerative diseases.</b> Degenerative diseases of the white and / or gray matter of the brain. Neurodegenerative diseases affecting the basal ganglia. Neurodegenerative diseases with tremor, myoclonus and myoclonic epilepsy. Neurodegenerative diseases of the cerebellum, brainstem and spinal cord.</p> <p><b>Assessment of children's neurodevelopment, neurodevelopmental disorders.</b> Normal and impaired child neurodevelopment, evaluation methods. Cerebral palsy, specific mixed and motor developmental disorders, mental retardation, learning disabilities, autism (epidemiology, etiopathogenesis, classification, clinic, diagnostic, differential diagnosis and treatment).</p> <p><b>Epilepsy in children.</b> Epidemiology, etiopathogenesis of seizures, semiology, classification of seizures and epileptic syndromes, clinic, its peculiarities in individual forms and in different age groups, diagnosis, differential diagnosis, electroencephalography, treatment of epilepsy. Prolonged seizures and status epilepticus. First aid.</p>				

**Acute symptomatic seizures in children.** Acute symptomatic (provoked) seizures, their causes, diagnosis, examination, first aid and emergency treatment, treatment of the cause and prevention of recurrence of seizures. Febrile seizures.

**Nonepileptic paroxysms in children.** Paroxysms associated with impaired brain oxygenation (syncope). Paroxysmal sleep disorders. Paroxysmal movement disorders. Psychogenic and pseudo epileptic seizures.

**Headaches in children.** Epidemiology, etiopathogenesis, classification and diagnostic criteria for headache. Migraine, tension headache, cluster headache, prosopalgia, other idiopathic headaches, symptomatic headache, investigation and treatment.

**Sleep physiology, sleep and wakefulness disorders in children.** Physiology of sleep-wakefulness, value of sleep electroencephalography and polysomnography, classification of sleep and wakefulness disorders, diagnosis, treatment.

**Neuroinfections.** Meningitis, encephalitis, myelitis, brain abscess. Neuroborreliosis.

**Demyelinating and neuroinflammatory non-demyelinating diseases:** etiology, clinic, diagnosis, treatment, possible complications and outcomes. Multiple sclerosis. ADEM. ON. Autoimmune encephalitis. Sydenham's Chorea. PANDAS. PANS. CANS and others.

**Peripheral nervous system diseases in children.** Neuropathies and neuralgias. Myasthenia. Guillain-Barre syndrome.

**Inherited neuromuscular diseases.** Hereditary spinal muscle atrophy. Hereditary polyneuropathy. Progressive muscular dystrophy. Myotonic diseases and periodic paralysis. Myopathies. Etiopathogenesis, classification, diagnosis and treatment options of inherited neuromuscular diseases.

**Urgent neurological conditions,** their symptoms, causes, examination and treatment tactics, principles of teamwork. Status epilepticus. Status dystonicus. The child suddenly stopped walking. Weakness and paralysis. Disorders of consciousness, coma. Brain death.

**Pediatric Neurological Service in Lithuania.**

### RECOMMENDED LITERATURE SOURCES

1. Ed. A. Arzimanoglou Aicardi's Diseases of nervous system in childhood 4rd ed London: Mac Keith Press 2018 m.
2. Eds. Forsyth R., Newton R. Oxford Specialist Handbook of Paediatric Neurology 3rd ed Oxford University Press 2018 m.
3. Robert Kliegman, Joseph St. Geme Nelson. Textbook of Pediatrics 21st Edition. Elsevier 2019 m.
4. www.UpToDate.com
5. Epilepsy (International League Against Epilepsy (ILAE) guidelines) <https://www.ilae.org/guidelines>
6. Epilepsies: diagnosis and management (NICE guideline) <https://www.nice.org.uk/guidance/cg137>
7. Neurological examination [https://neurologicexam.med.utah.edu/pediatric/html/home\\_exam.html](https://neurologicexam.med.utah.edu/pediatric/html/home_exam.html)

### CONSULTING LECTURERS

1. Coordinating lecturer: Jurgita Grikinienė (Assoc. Prof. Dr).
2. Rūta Samaitienė (Assist. Prof. Dr).
3. Rūta Praninskienė (Assist. Prof. Dr).

### APPROVED:

By Council of Doctoral School of Medicine and Health Sciences at Vilnius University:  
29<sup>th</sup> of September 2022

Chairperson of the Board: Prof. Janina Tutkuvienė