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**Federal State Autonomous Educational Institution of Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
NAMED AFTER PATRICE LUMUMBA**

**RUDN University
Institute of Medicine**

educational division (faculty/institute/academy) as higher education programme developer

COURSE SYLLABUS

Topical Issues of Neonatology

course title

Recommended by the Didactic Council for the Education Field of:

31.05.01 General Medicine

field of studies / speciality code and title

The course instruction is implemented within the professional education programme of higher education:

General Medicine

higher education programme profile/specialisation title

1. COURSE GOAL(s)

The course “Topical Issues of Neonatology” is part of the program of the specialty “General Medicine” in the field 31.05.01 “General Medicine” and is studied in the 9th semester in the 5th year. The discipline is implemented by the Department of Pediatrics. The discipline consists of 5 sections and 14 topics and is aimed at studying and improving basic, fundamental medical knowledge in the field of pediatrics, forming the professional competencies of a doctor capable of successfully solving professional problems

The purpose of mastering the course is the training of the doctor who has theoretical and practical knowledge, skills and abilities in the field of diagnostics, emergency care, treatment tactics, medical examination and prevention of the most common diseases of newborns, who is capable of and ready for independent professional activity

2. REQUIREMENTS FOR LEARNING OUTCOMES

The course “Topical Issues of Neonatology” is aimed at developing the following competences (parts of competencies) in students:

Table 2.1. List of competences that students acquire through the course study

Competence code	Competence descriptor	Competence formation indicators (within this course)
PC-2	Able to examine a patient in order to determine a diagnosis	PC-2.2. Able to make a preliminary diagnosis and make up a plan of laboratory and instrumental examinations of a patient. PC-2.7. Able to conduct a differential diagnosis with other diseases/conditions, including urgent ones, as well as to make a diagnosis taking into account the current international statistical classification of diseases and problems related to health (ICD).
PC-3	Able to prescribe treatment and monitor its efficacy and safety	PC-3.1. Able to develop a treatment plan for a disease or condition taking into account the diagnosis, age and clinical picture in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care, taking into account the

		standards of medical care. PC-3.2. Able to prescribe medications, medical devices and therapeutic nutrition taking into account the diagnosis, age and clinical picture of the disease and in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care, taking into account the standards of medical care.
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3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The course refers to the core/variable/elective* component of (B1) block of the higher educational programme curriculum.

* - Underline whatever applicable.

Within the higher education programme students also master other (modules) and / or internships that contribute to the achievement of the expected learning outcomes as results of the course study.

Table 3.1. The list of the higher education programme components/disciplines that contribute to the achievement of the expected learning outcomes as the course study results

Competence code	Competence descriptor	Previous courses/modules*	Subsequent courses/modules*
PC-2	Able to examine a patient in order to determine a diagnosis	Surgery practical: surgeon's assistant; Obstetrics and gynecology practical: gynecologist's assistant; General surgery; Dermatovenerology; Neurology, medical genetics, neurosurgery; Ophthalmology; Faculty surgery; Obstetrics and gynecology; Otorhinolaryngology; Faculty therapy; Propaedeutics of internal diseases; Urology; <i>Medical enzymology**</i> ; Molecular genetic methods; Microbiology, virology;	Obstetrics and gynecology practical: obstetrician's assistant; Practical in General practice: pediatrician's assistant; Hospital therapy; Endocrinology; Outpatient therapy; Hospital surgery, pediatric surgery; Pediatrics; Obstetrics and gynecology; Anesthesiology, resuscitation, intensive care; Oncology, radiation therapy; Reproductive health; Traumatology, orthopedics; Maxillofacial Surgery; General medical skills; Emergency conditions; Infectious diseases;

		Immunology; Evidence-based medicine; <i>Molecular genetics in practical biology and medicine**</i> ; Radiation diagnostics; Pathophysiology, clinical pathophysiology; Pathological anatomy, clinical pathological anatomy; Medical elementology;	Psychiatry, medical psychology; Allergology; Phthisiology; Endoscopic urology; Telemedicine; Cardiology in quests; Sectional course;
PC-3	Able to prescribe treatment and monitor its efficacy and safety	Dermatovenerology; Neurology, medical genetics, neurosurgery; Faculty surgery; Obstetrics and gynecology; Otorhinolaryngology; <i>Clinical research**</i> ; <i>Clinical Trials**</i> ; Faculty Therapy; Ophthalmology; Urology; <i>Fundamentals of Integrative Medicine**</i> ; Basics of therapeutic nutrition; <i>Introduction to Nutrition**</i> ; Pharmacology; Surgery practical: surgeon's assistant; Obstetrics and gynecology practical: gynecologist's assistant;	Hospital therapy; Endocrinology; Outpatient therapy; Hospital surgery, pediatric surgery; Pediatrics; Obstetrics and gynecology; <i>Outpatient cardiology**</i> ; Oncology, radiation therapy; Traumatology, orthopedics; Maxillofacial Surgery; Clinical pharmacology; Cardiology in quests; Infectious diseases; Psychiatry, medical psychology; Allergology; Phthisiology; Endoscopic urology; Telemedicine; Geriatrics and palliative medicine; Reproductive health; Obstetrics and gynecology practical: obstetrician's assistant; Practical in General practice: pediatrician's assistant;

* - created in accordance with the competence matrix and Higher Education programme

** - elective disciplines/practicals

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

Total course workload of “Topical issues of Neonatology” is is 2 credits (72 academic hours).

Table 4.1. Types of academic activities during the periods of higher education programme mastering (**full-time training**)*

Type of academic activities	Total academic hours	Semesters/training modules
		9
<i>Classroom learning, academic hours</i>	34	34
Lectures (LC)	0	0

Type of academic activities	Total academic hours	Semesters/training modules
		9
Lab work (LW)	34	34
Seminars (workshops/tutorials) (S)	0	0
<i>Self-studies</i>	35	35
<i>Evaluation and assessment (exam/passing/failing grade)</i>	3	3
Total course workload	<i>academic hours</i>	72
	<i>credits</i>	2

* To be filled in regarding the higher education programme correspondence training mode.

5. COURSE CONTENT

Table 5.1. Course contents and academic activities types

Course module title	Course module contents (topics)	Academic activities types
Module 1 Introduction to neonatology	1.1. Basic concepts of neonatology. Perinatal history. Neonatal risk groups. Anatomical and physiological features and methods of medical examination of the newborn. The fundamental concepts of neonatology and the periods of perinatal development are studied. Principles of obtaining a perinatal history and identifying high-risk newborns are considered. The anatomical and physiological characteristics of organ systems in the newborn are reviewed, along with the methodology of clinical examination and assessment of neonatal condition.	LW
	1.2. Adaptation of the newborn (borderline, transient states). The mechanisms of postnatal adaptation are examined. Transient (borderline) conditions are studied, including their clinical manifestations and the criteria distinguishing physiological adaptation from pathological states.	LW
	1.3. Neonatal screening.	LW

Course module title	Course module contents (topics)	Academic activities types
	<p>The aims and objectives of neonatal screening are discussed. Major inherited and congenital disorders included in screening programs are reviewed, along with screening methodologies and interpretation of results.</p>	
	<p>1.4. The premature newborn. The morphological and functional immaturity of preterm infants is addressed. The criteria of prematurity, features of adaptation, major risks, and principles of management are considered.</p>	LW
<p>Module 2 Perinatal pathology of the nervous system and birth trauma</p>	<p>2.1. Perinatal asphyxia, hypoxic-ischemic encephalopathy and its consequences. The etiology, pathogenesis, and clinical manifestations of perinatal asphyxia are studied. The severity grading of hypoxic-ischemic encephalopathy, diagnostic approaches, as well as potential outcomes and long-term consequences are reviewed.</p>	LW
	<p>2.2 Birth trauma. Different types of birth trauma involving the central nervous system, musculoskeletal system, and soft tissues are reviewed. Clinical manifestations, diagnostic approaches, and principles of management are discussed.</p>	LW
<p>Module 3 Diseases associated with metabolic disorders</p>	<p>3.1. Neonatal jaundice (hyperbilirubinemia). Physiological and pathological forms of neonatal hyperbilirubinemia are studied. Mechanisms of development, clinical features, diagnostic criteria, and differential diagnosis are discussed.</p>	LW
	<p>3.2. Hemorrhagic disease of the newborn.</p>	LW

Course module title	Course module contents (topics)	Academic activities types
	The etiology of vitamin K deficiency is reviewed. Clinical forms and manifestations of hemorrhagic disease of the newborn are discussed, along with diagnostic approaches, prevention, and treatment strategies.	
Module 4 Neonatal pulmonology	4.1. Neonatal respiratory distress syndrome. The causes and pathogenesis of neonatal respiratory distress syndrome are studied. The clinical presentation, diagnostic approaches, and principles of respiratory support are reviewed.	LW
	4.2. Bronchopulmonary dysplasia (BPD). Risk factors, pathogenesis, and clinical forms of bronchopulmonary dysplasia are reviewed. Diagnostic approaches, management strategies, and prognosis are discussed.	LW
	4.3. Congenital pneumonia. Etiological factors and clinical manifestations of congenital pneumonia are studied. Diagnostic methods and principles of treatment are discussed.	LW
Module 5 Perinatal infections.	5.1. Neonatal infections of the skin and subcutaneous fat, omphalitis, conjunctivitis. Infections of the skin, subcutaneous tissue, umbilical stump (omphalitis), and conjunctiva are reviewed. Clinical presentation, diagnostic approaches, and treatment principles are discussed.	LW
	5.2. Neonatal sepsis. Risk factors, pathogenesis, and clinical forms of neonatal sepsis are studied. Diagnostic strategies and	LW

Course module title	Course module contents (topics)	Academic activities types
	principles of intensive care management are discussed.	
	<p>5.3.</p> <p>Congenital (intrauterine) infections.</p> <p>Major intrauterine infections (TORCH complex) are reviewed. Clinical manifestations, diagnostic approaches, and outcomes are discussed.</p>	LW

* - created for **FULL-TIME** study only: LC – lectures; LW – lab work; S – seminars/workshops

6. CLASSROOM INFRASTRUCTURE AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Classroom equipment and technology support requirements

Classroom for academic activity type	Classroom equipment	Specialized educational/laboratory equipment, software and materials for the study of the discipline (if necessary)
Lab-work	A classroom for conducting seminar-type classes, group and individual consultations, continuous assessments and mid-term assessment, equipped with a set of specialized furniture and multimedia presentation equipment.	Set of specialized furniture; technical equipment: NEC VT59 multimedia projector, ASUS X50M and Dell Latitude D631 laptops, there is Internet access. Software: Microsoft products (OS, office application package, including MS Office / Office 365, Teams, Skype).
Self-studies	Classroom for students' independent work (can be used for seminars and consultations), equipped with a set of specialized furniture and computers with access to EIES.	

* - to be filled in only for **full**-time training: LC - lectures; LW - lab work; S - seminars.

7. RECOMMENDED SOURCES FOR COURSE STUDIES

Main readings:

1. Robert M. Kliegman, Brett J. Bordini, Heather Toth et al. Nelson Pediatric Symptom-Based Diagnosis: Common Diseases and their Mimics. Elsevier, 2022. ISBN 978-0-323-76174-1. DOI: <https://doi.org/10.1016/C2019-0-01335-0>

2. Sarah S. Long. Principles and Practice of Pediatric Infectious Diseases. Elsevier, 2022. ISBN 978-0-323-75608-2. DOI <https://doi.org/10.1016/C2019-0-00075-1>
3. Akhil Maheshwari. Principles of Neonatology. Elsevier, 2023. ISBN- 978-0-323-69415-5 DOI <https://doi.org/10.1016/C2018-0-02694-8> URL:<https://www.sciencedirect.com/book/9780323694155/principles-of-neonatology#book-description>
4. Henry C. Lee. Neonatal Health Care. Children, 2021. ISBN 978-3-0365-0731-6. URL: <https://www.mdpi.com/books/reprint/3841-neonatal-health-care>

Additional readings:

1. Tonia Vassilakou. Childhood Malnutrition. Children, 2021. ISBN978-3-0365-2268-5 URL: <https://www.mdpi.com/books/reprint/4560-childhood-malnutrition>
2. Neonatal and Pediatric Cerebro-Cardiopulmonary Resuscitation / Michael Shoykhet [et al.]. 2018. 1 c. ISBN 9782889456598 URL: <https://www.frontiersin.org/research-topics/4942/neonatal-and-pediatric-cerebro-cardio-pulmonary-resuscitation-ccpr>
3. Wynn J.L., Bliss J.M.. The Neonatal Immune System: A Unique Host-Microbial Interface, 2018. 1 c. ISBN 9782889454037 URL: <https://www.frontiersin.org/research-topics/5017/the-neonatal-immune-system-a-unique-host-microbial-interface>

Internet-(based) sources

1. Electronic libraries with access for RUDN students:

- Electronic library network of RUDN – ELN RUDN <https://mega.rudn.ru/MegaPro/Web>
- ELN “University library online” <http://www.biblioclub.ru>
- ELN Urait <http://www.biblio-online.ru>
- ELN «Student Advisor» www.studentlibrary.ru
- ELN «Znanium» <https://znanium.ru/>

2. Databases and search engines:

- Sage <https://journals.sagepub.com/>
- Springer Nature Link <https://link.springer.com/>
- Wiley Journal Database <https://onlinelibrary.wiley.com/>
- Lens.org <https://www.lens.org>

Learning toolkits for students’ self - studies in the mastery of the course/module:

1. Presentations on the discipline “Topical issues of Neonatology”.
2. Methodological guidelines for the implementation and registration of testing and independent work on the discipline “Topical issues of Neonatology”.

* - all learning toolkits for self- studies of students are on the course page in RUDN LMS TUIS in accordance with current procedures!

8. ASSESSMENT TOOLKIT AND GRADING SYSTEM* FOR EVALUATION OF STUDENTS’ COMPETENCES LEVEL UPON COURSE COMPLETION

Assessment materials and grading system* for the evaluation of achieved competency levels (parts of competences) for the learning outcomes of the “Topical issues of Neonatology” course are presented in the appendix to this Course syllabus.

* - assessment and grading systems are based on the corresponding local regulatory act of RUDN University

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