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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

ANESTHESIOLOGY, RESUSCITATION, INTENSIVE CARE

course title

Recommended by the Didactic Council for the Education Field of:

31.05.01 GENERAL MEDICINE

field of studies / specialty code and title

The course instruction is implemented within the professional education program of higher education (EP HE):

GENERAL MEDICINE

higher education program profile/specialization title

1. COURSE GOAL(s)

The course “Anesthesiology, Resuscitation, and Intensive Care” is included in the curriculum of the specialist program 31.05.01 “General Medicine” and is studied in the 11th semester of the 6th year. The discipline is delivered by the Department of Anesthesiology and intensive care with a course in Medical Rehabilitation. The discipline consists of 3 sections and 9 topics and is aimed at studying the principles of anesthetic management for surgical interventions, methods of preoperative preparation, intraoperative patient management, as well as the diagnosis and intensive care of critical conditions and the maintenance of vital body functions.

The objective of mastering the course is to develop in students the knowledge, skills, and competencies in the field of anesthesiology and resuscitation necessary for assessing a patient’s condition, providing anesthetic care, diagnosing and treating critical conditions, as well as delivering emergency medical care.

2. REQUIREMENTS FOR LEARNING OUTCOMES

The mastering of the COURSE «Anesthesiology, Resuscitation, Intensive Care» is aimed at the formation of the following competencies of students: GPC-10, GPC-4, GPC-5, PC-1, PC-2, PC-6

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

| Competence code | Competence descriptor | Competence formation indicators (within this course) |
|------------------------|--|---|
| GPC-10 | Able to solve standard professional tasks using information, bibliographic resources, biomedical terminology, and information and communication technologies, taking into account the basic requirements of information security | GPC-10.1 Able to use modern information and communication tools and technologies in professional activities; GPC-10.2 Able to comply with information security rules in professional activities; GPC-10.3 Able to use information and communication technologies, including application software and artificial intelligence technologies, in solving professional tasks; |
| GPC-4 | Being able to use medical devices provided for by the procedure for medical care, and conduct patient examinations in order to determine a diagnosis | GPC-4.1. Being able to use medical devices in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care, care taking into accounts the medical care standards. GPC-4.2. Being able to assess the effectiveness and safety of medical devices. GPC-4.3. Mastering the technique of performing typical medical procedures using medical devices provided for by the procedures for medical care provision. |
| GPC-5 | Being able to assess morpho-functional, physiological conditions and pathological processes in the human body to solve professional tasks | GPC-5.2. Being able to evaluate the results of clinical, laboratory and functional diagnosis when dealing with professional tasks. |

| Competence code | Competence descriptor | Competence formation indicators (within this course) |
|------------------------|---|--|
| PC-1 | Being able to provide emergency or urgent medical care to a patient | <p>PC-1.1. Being able to assess the condition of a patient who needs emergency or urgent medical care.</p> <p>PC-1.2. Being able to recognize conditions that arise from sudden acute diseases, exacerbation of chronic diseases without obvious signs of a threat to the patient's life and which require emergency medical care.</p> <p>PC-1.3. Being able to provide emergency medical care to patients with sudden acute diseases, conditions, exacerbation of chronic diseases without obvious signs of a threat to the patient's life.</p> <p>PC-1.4. Being able to recognize conditions which pose a threat to the patient's life, including conditions of clinical death (cessation of the vital bodily functions (blood circulation and/or respiration) which require emergency medical care.</p> <p>PC-1.5. Being able to provide emergency medical care to patients in conditions which pose a threat to the patient's life, including clinical death (cessation of the vital bodily functions (blood circulation and/or respiration).</p> <p>PC-1.6. Being able to use drugs and medical devices when providing medical care in emergency or urgent forms.</p> |
| PC-2 | Being able to examine a patient in order to determine a diagnosis | <p>PC-2.1. Mastering the skills to collect complaints, anamnesis of the patient's life and disease, as well as conduct a complete physical examination of the patient (examination, palpation, percussion, auscultation).</p> <p>PC-2.2. Being able to make a preliminary diagnosis and make up a plan of laboratory and instrumental examinations of a patient.</p> <p>PC-2.3. Being able to refer a patient to a laboratory examination in case there are medical indications 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 medical care standards.</p> <p>PC-2.4. Being able to refer a patient to an instrumental examination in case there are medical indications 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.</p> <p>PC-2.5. Being able to refer a patient to consult with a medical specialist if there is a medical indication</p> |

| Competence code | Competence descriptor | Competence formation indicators (within this course) |
|-----------------|--|--|
| | | <p>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.</p> <p>PC-2.6. Being able to refer a patient to be provided with specialized medical care in an inpatient setting or in a day hospital in case there are medical indications 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.</p> <p>PC-2.7. Being able to carry out differential diagnosis with other diseases/conditions, including the 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).</p> |
| PC-6 | Able to conduct health care Documentation and organization the activities of the medium-sized enterprise at its disposal medical staff | <p>PC-6.3. Is able to keep medical records, including electronic records.</p> <p>PC-6.4. Is able to supervise the performance of job duties by the district nurse and other available health care workers.</p> |

3. THE 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* |
|-----------------|-----------------------|---------------------------|-----------------------------|
|-----------------|-----------------------|---------------------------|-----------------------------|

| | | | |
|------------------------|--|---|--|
| GPC-4 | Being able to use medical devices provided for by the procedure for medical care, and conduct patient examinations in order to determine a diagnosis | Biotechnology; Physics; Chemistry; Pharmacology; General Surgery; Topographic Anatomy and Operative Surgery; Neurology, Medical Genetics, Neurosurgery; Radiology; Hospital Surgery, Pediatric Surgery; Traumatology, Orthopedics; Bioorganic Chemistry; Introductory Practice to Gain Primary Professional Skills | Emergency conditions; Endocrinology; Hospital Surgery, Pediatric Surgery; |
| Competence code | Competence descriptor | Previous courses/modules* | Subsequent courses/modules* |
| | | and Professional Experience: Patients' Care (Center of Simulaton Trining); Introductory Practice to Gain Primary Professional Skills and Professional Experience: Patients' Care; Practice for Obtaining Primary Professional Skills: Assistant Nursing Staff; Практика диагностического профиля: помощник палатной медицинской сестры; Practice to Gain Primary Professional Skills and Professional Experience: Assistant Ward Nurse; Practice for Obtaining Primary Professional Skills and Professional Experience: Assistant to a Procedural Nurse; | |

| | | | |
|------------------------|---|---|--|
| GPC-5 | Being able to assess morpho-functional, physiological conditions and pathological processes in the human body to solve professional tasks | Ophthalmology; Propaedeutics of internal diseases; Medical elementology; Obstetrics and gynecology; Biochemistry; Immunology; Otorhinolaryngology; General surgery; Pediatrics; Pharmacology; Anatomy; Topographic anatomy and operative surgery; Histology, embryology, cytology; Normal physiology; Microbiology, virology; Pathophysiology, clinical pathophysiology; Radiology; Bioorganic chemistry; Methods of cell biology and histology; Methods of microbiological diagnostics; Molecular genetic methods; | Maxillofacial surgery; Sectional course; Phthisiology; |
| Competence code | Competence descriptor | Previous courses/modules* | Subsequent courses/modules* |
| | | Pathological anatomy, clinical pathological anatomy; Biology; Chemistry; | |
| GPC-10 | Being able to understand the operation principles of modern IT and use them to solve professional tasks | Medical informatics; Evidence-based medicine; Biostatistics; Fundamentals of scientific research; Data analysis and visualization; Artificial Intelligence in the Implementation of Practical Healthcare Tasks; | Telemedicine; |

| | | | |
|------------------------|---|--|---|
| PC-1 | Being able to provide emergency or urgent medical care to a patient | Ophthalmology; Propaedeutics of Internal Diseases; Obstetrics and Gynecology; Infectious Diseases; General Surgery; Pediatrics; Faculty Therapy; Faculty Surgery; Neurology, Medical Genetics, Neurosurgery; Outpatient Therapy; Hospital Surgery, Pediatric Surgery; Traumatology and Orthopedics; Emergency Medicine in Life-Threatening Conditions; Hospital Therapy; Urology; Clinical Practice (Diagnostic Profile): Assistant Ward Nurse; Practice in Emergency Medical Procedures (Simulation Center); Practice for Acquisition of Primary Professional Skills and Experience: Assistant Procedure Nurse; Surgical Practice: Assistant Surgeon; Obstetric and Gynecological Practice: Assistant Gynecologist; Assistant Physician (Therapeutic Profile): Assistant Therapist; Obstetric and Gynecological Practice: Assistant Obstetrician; General Medical | Emergency conditions; Disaster Medicine; Endocrinology; Polyclinic therapy; Hospital surgery; Pediatric Surgery; Hospital Therapy; Endoscopic Urology; Allergology; |
| Competence code | Competence descriptor | Previous courses/modules* | Subsequent courses/modules* |
| | | Practice: Assistant Pediatrician | |

| | | | |
|------------------------|---|--|--|
| PC-2 | Being able to examine a patient in order to determine a diagnosis | <p>Medical Enzymology**; Molecular Genetics in Practical Biology and Medicine**; Ophthalmology; Propaedeutics of Internal Medicine; Medical Elementology; Obstetrics and Gynecology; Immunology; Infectious Diseases; Otolaryngology; General Surgery; Pediatrics; Faculty Therapy; Faculty Surgery; Occupational Diseases; Microbiology, Virology; Pathophysiology, Clinical Pathophysiology; Neurology, Medical Genetics, Neurosurgery; Psychiatry, Medical Psychology; Outpatient Therapy; Hospital Surgery, Pediatric Surgery; Traumatology, Orthopedics; Evidence-Based Medicine; Radiology; Dermatovenereology; Clinical dentistry; Topical issues of neonatology**; Cardiology in quests; Methods of microbiological diagnostics; Molecular genetic methods; Pathological anatomy, clinical pathological anatomy; Hospital therapy; Urology; Surgical practice: assistant surgeon; Obstetrics and gynecology practice: assistant gynecologist;</p> | <p>Telemedicine; Emergency conditions; Maxillofacial surgery; Sectional course; Endocrinology; Phthisiology; Outpatient therapy; Hospital surgery, pediatric surgery; Reproductive health; Hospital therapy; Endoscopic urology; Allergology;</p> |
| Competence code | Competence | Previous Disciplines | Subsequent disciplines (Group of subjects) |

| | | | |
|------|---|--|---|
| | | <p>Assistant therapeutic physician: assistant therapist; General medical practice: assistant outpatient clinic physician; Obstetrics and gynecology practice: assistant obstetrician; General medical practice: assistant pediatrician;</p> | |
| PC-6 | <p>Able to conduct health care Documentation and organization the activities of the medium-sized enterprise at its disposal medical staff</p> | <p>Ophthalmology; Propaedeutics of Internal Medicine; Obstetrics and Gynecology; Bioethics**; Infectious Diseases; General Surgery; Pediatrics; Faculty Therapy; Faculty Surgery; Public Health and Healthcare, Healthcare Economics; Outpatient Therapy; Hospital Surgery, Pediatric Surgery; Radiology; Biostatistics; Hospital Therapy; Urology; Introductory Practice to Obtain Primary Professional Skills and Abilities: Nursing (Simulation Center); Introductory Practice to Obtain Primary Professional Skills and Abilities: Nursing; Practice to Obtain Primary Professional Skills and Abilities: Assistant to Junior Medical Personnel; Practice to Obtain Primary Professional Skills and Experience in Professional Activity: Assistant to Procedural Nurse; Surgical profile practice: assistant surgeon; Obstetrics and gynecology profile practice: assistant gynecologist;</p> | <p>Telemedicine; Outpatient therapy; Hospital surgery, pediatric surgery; Hospital therapy; Endoscopic urology; Allergology;</p> |

| Competence code | Competence | Previous Disciplines | Subsequent disciplines (Group of subjects) |
|-----------------|------------|--|--|
| | | Therapy profile physician assistant: assistant therapist; General medical profile practice: assistant physician of an outpatient clinic; Obstetrics and gynecology profile practice: assistant obstetrician; | |

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

The total workload of the course «Anesthesiology, Resuscitation, Intensive care» is 3 credits (108 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 |
|---|----------------------|------------|----------------------------|
| | | | 11 |
| <i>Contact academic hours</i> | 51 | | 51 |
| Lectures (LC) | 0 | | 0 |
| Lab work (LW) | 51 | | 51 |
| Seminars (workshops/tutorials) (S) | 0 | | 0 |
| <i>Self-studies</i> | 48 | | 48 |
| <i>Evaluation and assessment (exam/passing/failing grade)</i> | 9 | | 9 |
| Course workload | academic hours | 108 | 108 |
| | credits | 3 | 3 |

5. COURSE CONTENTS

Table 5.1. Course contents and academic activities types

| Course module title | Course module contents (topics) | Academic activities types |
|-----------------------------|---|---------------------------|
| Section 1 Anesthesiology | 1.1. Fundamentals of anesthesiology. General principles of anesthetic management. Preoperative patient assessment. Methods of general and regional anesthesia. Monitoring during anesthesia. Anesthesia complications and their prevention. Management of patients in the early postoperative period, prevention and correction of complications. | LW |
| Section 2 | 2.1. | LW |

| | | |
|--------------------------------|---|-----------|
| Resuscitation | Homeostasis. Acid-base state. Concept of homeostasis. Buffer systems. Disorders of acid-base balance (acidosis, alkalosis), compensation mechanisms. Interpretation of blood gas composition, correction of metabolic and respiratory disorders. | |
| | 2.2. Respiratory failure. Fundamentals of Respiratory Support Classification of respiratory failure. Methods of oxygen therapy. Non-invasive and invasive ventilation. Selection of ventilation parameters. Prevention of ventilator-associated complications. | LW |
| | 2.3. Advanced cardiopulmonary resuscitation Algorithms of basic and advanced cardiopulmonary resuscitation. Types of cardiac arrest. Drug therapy and post-resuscitation management. Hemodynamic monitoring. | LW |
| | 2.4. Shocks. Principles of therapy for various types of shock. Multiple organ failure Pathogenesis of shock. Classification (hypovolemic, cardiogenic, distributive, obstructive). Principles of intensive therapy. | LW |
| | 2.5. Infusion-transfusion therapy Goals of infusion therapy. Crystalloid and colloid solutions. Indications, technique, complications, and prevention. Transfusion of blood components: purpose, indications, technique, complications, and prevention. | LW |
| | 2.6. Infections in the ICU. Sepsis. Definition of sepsis and septic shock. Diagnosis, assessment scales, principles of intensive therapy. | LW |
| Section 3 Intensive therapy | 3.1. Acute cardiovascular failure. MI. Pulmonary embolism. Principles of Intensive Care Pathogenesis, clinical presentation, diagnosis, and treatment of acute cardiac conditions. | LW |
| | 3.2. Comas. Differential diagnosis com. Principles of Intensive Care Types of consciousness disorders. Classification of comas. Glasgow Coma Scale. Diagnosis of causes and principles of intensive therapy. | LW |

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

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENT

Table 6.1. Classroom equipment and technology support requirements

| Type of academic activities | Classroom equipment | Specialised educational / laboratory equipment, software, and materials for course study (if necessary) |
|-----------------------------|--|---|
| Laboratory | Classroom for conducting laboratory work, individual consultations, ongoing assessment, and interim certification, equipped with a set of specialized furniture and equipment. | Laboratory, diagnostic, and medical equipment of the department's clinics and hospitals. |
| Self-studies | A classroom for independent work of students (can be used for conducting seminars and consultations), equipped with a set of specialized furniture and computers with access to the Electronic Information System. | Set of specialized furniture; technical equipment: multimedia projector, laptop, plasma panel, magnetic board, set of mannequins, set of educational videos and presentations, set of analog and digital radiographs, educational posters and tables. Software: Microsoft and Yandex products (operating systems, office software packages including MS Office/Office 365, as well as Yandex services). |

| Classroom for Academic Activity Type | Classroom Equipment | Specialized educational/laboratory equipment, software and materials for the mastering of the discipline |
|--------------------------------------|---------------------|--|
| | | including MS Office/Office 365, as well as Yandex services). |

* - the audience for independent work of students is indicated **MANDATORY!**

7. RESOURCES RECOMMENDED FOR COURSE STUDY

a. Main readings:

1. Clinical Anesthesia, 8e: EBook Without Multimedia / Edited by Paul G. Barash, Bruce Cullen, Robert K. Stoelting, Michael K. Cahalan, M. Christine Stock, Rafael Ortega, Sam R. Sharar, and Natalie F. Holt. - Electronic resources. - Wolters Kluwer Health, 2017. - 5779 c. URL: https://mega.rudn.ru/MegaPro/UserEntry?Action=Link_FindDoc&id=513177&idb=0
2. Practice Guidelines by the American Society of Anesthesiologists (ASA). URL: <https://www.asahq.org/standards-and-practice-parameters>
3. ASA Standards for Basic Anesthetic Monitoring. URL: <https://www.asahq.org/standards-and-practice-parameters/standards-for-basic-anesthetic-monitoring>
4. European Resuscitation Council Guidelines 2025. URL: <https://www.erc.edu/science-research/guidelines/guidelines-2025/guidelines-2025-english/>
5. ESICM Clinical Practice Guideline on Circulatory Shock and Hemodynamic Monitoring (2025). URL: <https://www.esicm.org/esicm-guideline-circulatory-shock-haemodynamic-monitoring/>

b. Additional readings:

1. The Washington Manual of Critical Care / Edited by Marin H. Kollef, and Warren Isakow . – Electronic resources- Wolters Kluwer Health, 2018. - 996 c. - (Lippincott Manual). URL: https://mega.rudn.ru/MegaPro/UserEntry?Action=Link_FindDoc&id=513205&idb=0
2. Guidelines to the practice of anesthesia/ Gregory Dobson et al./ Can J Anesth/J Can Anesth (2024) 71:8–54/. <https://doi.org/10.1007/s12630-023-02675-0>
3. WHO Guidelines on the Clinical Management of Sepsis (2024). URL: <https://www.who.int/news/item/30-01-2024-guidelines-on-the-clinical-management-of-sepsis>
4. Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock (2026). URL: <https://www.sccm.org/clinical-resources/guidelines/guidelines/surviving-sepsis-campaign-international-guidelines-for-management-of-sepsis-and-septic-shock-2026>

Resources of the information and telecommunications network "Internet":

1. RUDN University Electronic Library System and third-party electronic library systems to which university students have access

based on concluded agreements

- Electronic library system of RUDN - ELS RUDN

<http://lib.rudn.ru/MegaPro/Web>

- Electronic library system "University library online"<http://www.biblioclub.ru>

- EBS Yuraith<http://www.biblio-online.ru>

- Electronic Library System "Student Consultant"www.studentlibrary.ru

- Electronic library system "Troitsky Bridge"

2. Databases and search engines

- electronic fund of legal and normative-technical documentation

<http://docs.cntd.ru/>

- Yandex search engine <https://www.yandex.ru/>

- Google search engine <https://www.google.ru/>

- SCOPUS abstract database

<http://www.elsevierscience.ru/products/scopus/>

Educational and methodological materials for independent work of students

mastering the discipline/module:*

1. A course of lectures on the subject "Anesthesiology, resuscitation, intensive care".

* - all educational and methodological materials for independent work of students are posted in accordance with the current procedure on the discipline page in TUIS!

DEVELOPERS:

Assistant lecturer

P. Pradhan

position, department

signature

name and surname

HEAD OF EDUCATIONAL DEPARTMENT:

of Anaesthesiology and

Reanimatology with a course

of medical rehabilitation

M.V. Petrova

name of department

signature

name and surname

**HEAD
OF HIGHER EDUCATION PROGRAMME:**

Deputy Director of Institute of
Medicine

N.V. Sturov

position, department

signature

name and surname

