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Federal State Budget Educational Institution
of Higher Education
Pacific State Medical University
of the Ministry of Health of the Russian Federation

APPROVED BY
Head of the Department of
Anesthesiology, Resuscitation, Intensive Care,
and Emergency Medical Care
_____ /Shumatov V.B./
"15th" of April 2025

SUBJECT GUIDE FOR TEACHERS AND STUDENTS FOR

Б1.О.36 Anesthesiology, resuscitation, and intensive care

(Name of discipline)

Specialty	**31.05.01 General Medicine for international students (in English)** (code, name)
Degree	Specialist's degree
Profile	02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system)
Mode of study	**Full-time**
Period of mastering the BEP	**6 years** (nominal length of study)
Department	of Anesthesiology, Resuscitation, Intensive Care, and Emergency Medical Care

Vladivostok, 2025

Subject guide for teachers and students for **Б1.О.36 Anesthesiology, resuscitation, and intensive care** is based on:

1) Federal State Educational Standard of Higher Education for the specialty approved by the Order No. 988 of Ministry of Science and Higher Education of the Russian Federation
dated August 12, 2020.

2) Curriculum for the 31.05.01 General Medicine for international students (in English), profile 02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system), approved by the Academic Council of FSBEI HE PSMU of the Ministry of Health of Russia, Report No. 8/24-25 dated March 31, 2025.

Subject guide for teachers and students for **Б1.В.10 First aid. Basic cardiopulmonary resuscitation** was developed by the writing team of the Department of Anesthesiology, Resuscitation, Intensive Care, and Emergency Medical Care of the FSBEI HE PSMU of the Ministry of Health of Russia, under the guidance of the Head of the Department, Doctor of Medical Sciences Shumatov V.B.

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1. GENERAL PROVISIONS

Subject guide for **Б1.О.36 Anesthesiology, resuscitation, and intensive care** is a set of recommendations and explanations that facilitate to optimal organization of mastering this discipline.

Regular analysis of lecture materials and work with end-of-the-text questions are necessary for better understanding of the material and systematization of knowledge of **Б1.О.36 Anesthesiology, resuscitation, and intensive care**. Particular attention should be paid to emerging questions, confusing terms, and conflicts of points of view during the independent review of the lecture material. If necessary, a student should contact the teacher for advice. Lecture material streamlines students' thinking, while practical classes provide deeper insight into the material of the discipline.

Special attention should be paid to the content of the main provisions and conclusions, explanation of phenomena and facts, and clarification of the practical application of theoretic aspects of topic when preparing for a practical class. During this process students should aim to understand and remember the main provisions of the material under consideration, examples provided, as well as understand the illustrative material.

Collections of assessment tools are used to organize independent study of topics of.

Independent work of students is facilitated by the following:

1. availability and accessibility of the necessary educational and reference material;
2. a system of regular quality control of completed independent work;
3. availability of teacher's advice.

Subject guides for self-study are presented as literary sources. Subject guides for independent work of students include a list of library resources of the educational institution and other materials accessible to students.

Independent work is a type of in-person extracurricular work of teachers and students of **Б1.О.36 Anesthesiology, resuscitation, and intensive care**. Control of independent work is conducted by the leading teacher. Evaluation of independent work results is taken into account when conducting interim examination of students throughout **Б1.О.36 Anesthesiology, resuscitation, and intensive care** course.

Continuous assessment during **Б1.О.36 Anesthesiology, resuscitation, and intensive care** course is implemented in order to check indicators of achieving competencies, to stimulate students' academic work, and improve methods of mastering new knowledge. Continuous assessment during **Б1.О.36 Anesthesiology, resuscitation, and intensive care** course is conducted during the semester to assess all types and sections of the academic discipline that encompass the competencies developed by the discipline: classroom questioning, conducting discussions, working with tests, preparing reports. Continuous assessment of students' knowledge and results of their preparation for practical classes is conducted during every class session.

Interim assessment aims to determine the level of mastery of competency indicators. It is conducted in the pass/fail test format after the student has mastered all sections of **Б1.О.36 Anesthesiology, resuscitation, and intensive care** and takes into account learning outcomes for all types of student work over the entire period of mastering **Б1.О.36 Anesthesiology, resuscitation, and intensive care** course.

Time allotted for interim assessment is indicated in the schedule.

Assignments given during practical classes, as well as assignments aimed to prepare students for continuous and interim assessment, are included in the collection of assessment tools for **Б1.О.36 Anesthesiology, resuscitation, and intensive care**. If necessary, students should contact the teacher for advice. It is necessary to thoroughly think over questions that need clarification before seeking teacher's advice.

2. SUBJECT GUIDES FOR LECTURE CLASSES

Table 1. Subject Guides for **Б1.О.36 Anesthesiology, resuscitation, and intensive care** Lectures

Topic No.1 Intensive care in patients with acute respiratory failure	
Duration of the lecture (in academic hours):	2
Purpose of the lecture: 1. tell students about types and causes of hypoxia, clinical manifestation of acute respiratory failure; 2. define acute respiratory failure and examine its pathogenesis; 3. examine the methods of intensive care in patients with acute respiratory failure.	
Lecture plan, order of presentation of its sections: - Types of hypoxia - Acute respiratory failure, definition - Pathogenetic classification of acute respiratory failure and its pathogenesis - Clinical manifestation of hypoxemia and hypercapnia - Stages of acute respiratory failure - Acute respiratory failure criteria - Methods of assessing the severity of acute respiratory failure and monitoring it - Treatment methods	
Recommended reading: 1. Интенсивная терапия: национальное руководство. - Т. 1. : в 2 т. /. - 2-е изд. , перераб. и доп. [Электронный ресурс] Под ред. И. Б. Заболотских, Д. Н. Проценко М. : ГЭОТАР-Медиа, 2022. URL: https://www.studentlibrary.ru/book/ISBN9785970471906.html 2. Анестезиология: национальное руководство [Электронный ресурс] Под ред. А.Г. Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970472750.html	
Topic No.2 Acute respiratory distress syndrome (ARDS)	
Duration of the lecture (in academic hours):	2
Purpose of the lecture: 1. tell students about the causes, types, and clinical manifestation of acute respiratory distress syndrome; 2. examine pathogenesis and diagnostic criteria of acute respiratory distress syndrome; 3. overview the methods of intensive care in patients with acute respiratory distress syndrome.	
Lecture plan, order of presentation of its sections: - ARDS criteria - Risk factors - Pathogenesis - Clinical manifestation - Radiologic signs - CT-diagnostics - Lung Injury Score (LIS) (Murray J.F. et al., 1988)	
Recommended reading: 1. Интенсивная терапия: национальное руководство. - Т. 1. : в 2 т. /. - 2-е изд. , перераб. и доп. [Электронный ресурс] Под ред. И. Б. Заболотских, Д. Н. Проценко М. : ГЭОТАР-	

Медиа, 2022. URL: https://www.studentlibrary.ru/book/ISBN9785970471906.html
2. Анестезиология: национальное руководство [Электронный ресурс] Под ред. А.Г. Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970472750.html

Topic No.3 Impaired fluid and electrolyte balance

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about types of impaired fluid and electrolyte balance, their pathophysiology and clinical manifestation;
2. define types of impaired fluid and electrolyte balance;
3. examine the methods of correcting impaired fluid and electrolyte balance.

Lecture plan, order of presentation of its sections:
- Select aspects of fluid and electrolyte balance physiology. Cardiovascular system
- Plasma osmolarity
- Main components of the fluid compartments of the body
- Buffer systems of the body
- Blood substitutes
- Classification of blood substitutes
- Hemodynamic antishock agents
- Principles of intravenous therapy
- Saline solution requirements
- Alkaline reserve
- Plasma substitutes requirements
- Dextrans, classification
- Side effects of dextrans
- Gelatin solutions, characteristics of select representatives
- Side effects of gelatin solutions
- Hydroxyethyl starch solutions
- Side effects of hydroxyethyl starch solutions
- Intravenous albumin. Indications
- Drawbacks of intravenous albumin

Recommended reading:
1. Интенсивная терапия : национальное руководство. - Т. 1. : в 2 т. /. - 2-е изд. , перераб. и доп. [Электронный ресурс] Под ред. И. Б. Заболотских, Д. Н. Проценко М. : ГЭОТАР-Медиа, 2022. URL: https://www.studentlibrary.ru/book/ISBN9785970471906.html
2. Анестезиология: национальное руководство [Электронный ресурс] Под ред. А.Г. Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970472750.html
3. Водно-электролитный обмен и его нарушения : руководство для врачей [Электронный ресурс] В. Г. Антонов и др.; под ред. А. И. Карпищенко М. : ГЭОТАР-Медиа, 2022 URL : https://www.studentlibrary.ru/book/ISBN9785970465868.html

Topic No.4 Impaired acid-base balance

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about types of impaired acid-base balance, their pathophysiology and clinical manifestation;
2. define types of impaired acid-base balance;
3. examine the methods of correcting impaired acid-base balance.

Lecture plan, order of presentation of its sections:
- Buffer systems of the body
- Hydrogen potential (pH) assessment
- Acidosis and alkalosis
- Causes of impaired acid-base balance
- Types of impaired acid-base balance
- Physiological mechanisms of compensation of impaired acid-base balance
- Principles of correcting impaired acid-base balance

Recommended reading:
1. Интенсивная терапия : национальное руководство. - Т. 1. : в 2 т. /. - 2-е изд. , перераб. и доп. [Электронный ресурс] Под ред. И. Б. Заболотских, Д. Н. Проценко М. : ГЭОТАР-Медиа, 2022. URL: https://www.studentlibrary.ru/book/ISBN9785970471906.html
2. Анестезиология: национальное руководство [Электронный ресурс] Под ред. А.Г. Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970472750.html
3. Водно-электролитный обмен и его нарушения : руководство для врачей [Электронный ресурс] В. Г. Антонов и др.; под ред. А. И. Карпищенко М. : ГЭОТАР-Медиа, 2022 URL : https://www.studentlibrary.ru/book/ISBN9785970465868.html

Topic No.5 Fundamentals of enteral and parenteral nutrition

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about fundamentals of nutritional deficiency and nutritional support;
2. define nutritional deficiency;
3. examine the methods of nutritional support in intensive care.

Lecture plan, order of presentation of its sections:
- Definition of nutritional support
- Documents regulating organization and contents of therapeutic nutrition in Russian medical institutions
- Nutritional status
- Assessment of nutritional deficiency
- Types of nutritional support
- Indications and contraindications for nutritional support
- Calculations of required nutritional support
- Selection of nutritional support program
- Enteral nutrition
- Means of enteral nutrition
- Complications of enteral nutrition
- Parenteral nutrition
- Means of parenteral nutrition
- Complications of parenteral nutrition

Recommended reading:

1. Интенсивная терапия : национальное руководство. - Т. 1. : в 2 т. /. - 2-е изд. , перераб. и доп. [Электронный ресурс] Под ред. И. Б. Заболотских, Д. Н. Проценко М. : ГЭОТАР-Медиа, 2022. URL: https://www.studentlibrary.ru/book/ISBN9785970471906.html
2. Анестезиология: национальное руководство [Электронный ресурс] Под ред. А.Г. Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970472750.html
3. Парентеральное и энтеральное питание. Национальное руководство [Электронный ресурс] Под ред. С.С. Петрикова, М.Ш. Хубутия, Т.С. Поповой М.: ГЭОТАР-Медиа, 2023 URL: https://www.studentlibrary.ru/book/ISBN9785970472774.html

Topic No.6 Acute cerebrovascular insufficiency

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about causes, pathogenesis, clinical manifestation, and complications of acute cerebrovascular insufficiency;
2. define acute cerebrovascular insufficiency;
3. examine the methods of intensive care in patients with acute cerebrovascular insufficiency.

Lecture plan, order of presentation of its sections:
- Acute cerebrovascular insufficiency
- Levels of consciousness
- Etiological causes of altered level of consciousness
- Pathogenesis behind altered level of consciousness
- Acute cerebrovascular insufficiency theory
- Types of cerebral edema
- Brain herniation syndrome
- Coma complications
- Assessment of vital functions and patient status
- Glasgow Coma Scale
- Specific types of coma
- Intensive care in patients with altered level of consciousness
- Adequate oxygen support
- Correction of hemodynamics
- Treatment of seizures, agitation, and vegetative reactions
- Lowering intracranial pressure and prevention of cerebral edema
- Treatment of intoxication

Recommended reading:
1. Интенсивная терапия : национальное руководство. - Т. 1. : в 2 т. /. - 2-е изд. , перераб. и доп. [Электронный ресурс] Под ред. И. Б. Заболотских, Д. Н. Проценко М. : ГЭОТАР-Медиа, 2022. URL: https://www.studentlibrary.ru/book/ISBN9785970471906.html
2. Анестезиология: национальное руководство [Электронный ресурс] Под ред. А.Г. Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970472750.html
3. Нейрореаниматология : практическое руководство - 2-е изд. , перераб. и доп. [Электронный ресурс] В. В. Крылов, С. С. Петриков, Г. Р. Рамазанов, А. А. Солодов. Москва: ГЭОТАР-Медиа, 2023. URL : https://www.studentlibrary.ru/book/ISBN9785970477540.html

Topic No.7 Acute liver failure

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about acute liver failure, its causes, pathogenesis, clinical manifestation, and complications;
2. define acute liver failure;
3. examine the methods of intensive care in patients with acute liver failure.

Lecture plan, order of presentation of its sections:
- Acute liver failure, definition
- Main causes of acute liver failure
- Functions of the liver
- Clinical manifestation of acute liver failure
- Syndromes of acute liver failure
- Aspects of nutritional support in patients with acute liver failure
- Complications of acute liver failure
- Treatment of acute liver failure

Recommended reading:
1. Интенсивная терапия : национальное руководство. - Т. 2. : в 2 т. /. - 2-е изд. , перераб. и доп. [Электронный ресурс] Под ред. И. Б. Заболотских, Д. Н. Проценко М. : ГЭОТАР-Медиа, 2022. URL: https://www.studentlibrary.ru/book/ISBN9785970471906.html
2. Анестезиология: национальное руководство [Электронный ресурс] Под ред. А.Г. Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970472750.html
3. Парентеральное и энтеральное питание. Национальное руководство [Электронный ресурс] Под ред. С.С. Петрикова, М.Ш. Хубутия, Т.С. Поповой М.: ГЭОТАР-Медиа, 2023 URL: https://www.studentlibrary.ru/book/ISBN9785970472774.html

Topic No.8 Acute kidney injury

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about acute kidney injury, its causes, pathogenesis, clinical manifestation, and complications;
2. define acute kidney injury;
3. examine the methods of intensive care in patients with acute kidney injury.

Lecture plan, order of presentation of its sections:
- Acute kidney injury, definition
- Main causes of acute kidney injury
- Clinical manifestation of acute kidney injury
- Aspects of nutritional support in patients with acute kidney injury
- Complications of acute kidney injury
- Treatment of acute kidney injury

Recommended reading:
1. Интенсивная терапия : национальное руководство. - Т. 2. : в 2 т. /. - 2-е изд. , перераб. и доп. [Электронный ресурс] Под ред. И. Б. Заболотских, Д. Н. Проценко М. : ГЭОТАР-Медиа, 2022. URL: https://www.studentlibrary.ru/book/ISBN9785970471906.html
2. Анестезиология: национальное руководство [Электронный ресурс] Под ред. А.Г. Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL:

https://www.studentlibrary.ru/book/ISBN9785970472750.html
3. Парентеральное и энтеральное питание. Национальное руководство [Электронный ресурс] Под ред. С.С. Петрикова, М.Ш. Хубутия, Т.С. Поповой М.: ГЭОТАР-Медиа, 2023 URL: https://www.studentlibrary.ru/book/ISBN9785970472774.html

Topic No.9 Emergency cardiology (acute cardiac conditions)

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about life-threatening arrhythmias, their causes and classification;
2. define acute cardiac conditions;
3. examine the methods of providing medical aid to patients with arrhythmia.

Lecture plan, order of presentation of its sections:
- Acute cardiac conditions, definition
- Classification of emergency conditions in patients with arrhythmia
- Sudden cardiac death
- Epidemiology
- Sudden cardiac death risk stratification, B. Lown and M. Wolf , 1971
- Risk stratification, T. Bigger, 1984
- Ejection fraction as risk factor of sudden cardiac death
- Implantable cardiac defibrillator as a means of primary prevention of sudden cardiac death
- Rules of urgent arrhythmia diagnostics
- Tachycardia groups
- Electrical cardioversion and emergency medical aid in case of tachyarrhythmia
- Bradycardias
- First aid in case of life-threatening bradycardia
- Transcutaneous pacing

Recommended reading:
1. Интенсивная терапия : национальное руководство. - Т. 1. : в 2 т. /. - 2-е изд. , перераб. и доп. [Электронный ресурс] Под ред. И. Б. Заболотских, Д. Н. Проценко М. : ГЭОТАР-Медиа, 2022. URL: https://www.studentlibrary.ru/book/ISBN9785970471906.html
2. Анестезиология: национальное руководство [Электронный ресурс] Под ред. А.Г. Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970472750.html
3. Внезапная сердечная смерть [Электронный ресурс] Бокерия Л. А., Ревишвили А. Ш., М.: ГЭОТАР-Медиа, 2020 Неминущий Н. М., Проничева И. В. URL: https://www.studentlibrary.ru/book/ISBN9785970456293.html

Topic No.10 Clinical and diagnostic concept and treatment of sepsis

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about the concept, clinical manifestation, and diagnosis of sepsis;
2. define sepsis;
3. examine the methods of intensive care in patients with sepsis.

Lecture plan, order of presentation of its sections:

- Sepsis classification
- Systemic inflammatory response syndrome (SIRS), definition
- Clinical manifestation and laboratory tests criteria of SIRS
- Sepsis, definition
- Updated diagnostic criteria of sepsis
- Main criteria
- Inflammation criteria
- Hemodynamic criteria
- Organ dysfunction criteria
- Indicators of tissue hypoperfusion
- Etiology of sepsis
- Microbiological diagnostics of sepsis
- Intensive care in patients with sepsis
- Hemodynamic support in patients with sepsis

Recommended reading:

1. Интенсивная терапия : национальное руководство. Т. 2 : в 2 т. /. - 2-е изд. , перераб. и доп. [Электронный ресурс] Под ред. И. Б. Заболотских, Д. Н. Проценко М. : ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970471913.html
2. Анестезиология: национальное руководство [Электронный ресурс] Под ред. А.Г. Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970472750.html
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4. Перитонит и абдоминальный сепсис [Электронный ресурс] Лебедев Н.В., Климов А.Е., Персов М.Ю. М.: ГЭОТАР-Медиа, 2023 URL: https://www.studentlibrary.ru/book/ISBN9785970480694.html

Topic No.11 Main stages and techniques of general anesthesia. Pre-operative patient management

Duration of the lecture (in academic hours):	2

Purpose of the lecture:

1. tell students about basics of general anesthesia;
2. define anesthesiology and resuscitation science as an academic discipline;
3. examine the general anesthesia techniques.

Lecture plan, order of presentation of its sections:

- History of anesthesiology as a science
- Classification of anesthesia techniques
- Components of general anesthesia
- Stages of general anesthesia
- Aim and objectives of pre-operative evaluation
- Risk evaluation before for anesthesia and surgery
- Theories of general anesthesia

Recommended reading:

1. Анестезиология: национальное руководство [Электронный ресурс] Под ред. А.Г. Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970472750.html

Topic No.12 Inhalational and intravenous anesthetics	
Duration of the lecture (in academic hours):	2
Purpose of the lecture: 1. tell students about inhalational and intravenous anesthetics; 2. define inhalational and intravenous anesthesia; 3. examine the methods of combined administration of anesthetics.	
Lecture plan, order of presentation of its sections: - Classification of general anesthetics - Characteristics of inhalational anesthesia - Minimum alveolar concentration of inhalational anesthetics - Distribution of inhalational anesthetics - Clinical and pharmacological characteristics of anaesthesia ether, stages of ether anesthesia - Clinical and pharmacological characteristics of halothane, stages of halothane anesthesia - Clinical and pharmacological characteristics of modern inhalational anesthetics: isoflurane, sevoflurane, desflurane - Medical gases: nitrous oxide, xenon - Stages of xenon anesthesia - Intravenous anesthetics - Clinical and pharmacological characteristics of sodium thiopental - Clinical and pharmacological characteristics of GHB (gamma-hydroxybutyric acid) - Clinical and pharmacological characteristics of ketamine - Clinical and pharmacological characteristics of propofol	
Recommended reading: 1. Анестезиология: национальное руководство [Электронный ресурс] Под ред. А.Г. Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970472750.html	

3. SUBJECT GUIDES FOR PRACTICAL CLASSES

Table 2. Subject Guides for Practical **Б1.О.36 Anesthesiology, resuscitation, and intensive care** Classes

Topic No.1 Intensive care in patients with acute respiratory failure or ARDS	
Duration of the practical class (in academic hours):	6
Purpose of the practical class: 1. consolidate acquired knowledge on respiratory failure and acute respiratory distress syndrome; 2. during the discussion, outline the main etiological causes, clinical manifestation, and pathogenesis of respiratory failure and acute respiratory distress syndrome; 3. thoroughly go over diagnostic criteria for respiratory failure and acute respiratory distress syndrome; 4. study patterns of development, progression, and outcomes of respiratory failure and acute respiratory distress syndrome; 5. develop the approach to managing patients with acute respiratory failure or ARDS.	
Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.	

Independent work of the student: preparation of a report on the lecture and working with study materials.
Methods of evaluation of acquired knowledge and skills: review of reports, discussions, quizzes, tests.
Recommended reading: 1. Интенсивная терапия: национальное руководство. - Т. 1. : в 2 т. /. - 2-е изд. , перераб. и доп. [Электронный ресурс] Под ред. И. Б. Заболотских, Д. Н. Проценко М. : ГЭОТАР-Медиа, 2022. URL: https://www.studentlibrary.ru/book/ISBN9785970471906.html 2. Анестезиология: национальное руководство [Электронный ресурс] Под ред. А.Г. Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970472750.html
Topic No.2 Intensive care in patients with acute cerebrovascular insufficiency

Duration of the practical class (in academic hours):	6

Purpose of the practical class: 1. consolidate acquired knowledge of acute cerebrovascular insufficiency; 2. during the discussion, outline the main etiological causes, clinical manifestation, and pathogenesis of acute cerebrovascular insufficiency; 3. thoroughly go over definitions and concepts of acute cerebrovascular insufficiency; 4. study patterns of development, progression, and outcomes of acute cerebrovascular insufficiency; 5. develop the approach to managing patients with acute cerebrovascular insufficiency.
Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.
Independent work of the student: preparation of a report on the lecture and working with study materials.
Methods of evaluation of acquired knowledge and skills: review of reports, discussions, quizzes, tests.
Recommended reading: 1. Интенсивная терапия : национальное руководство. - Т. 1. : в 2 т. /. - 2-е изд. , перераб. и доп. [Электронный ресурс] Под ред. И. Б. Заболотских, Д. Н. Проценко М. : ГЭОТАР-Медиа, 2022. URL: https://www.studentlibrary.ru/book/ISBN9785970471906.html 2. Анестезиология: национальное руководство [Электронный ресурс] Под ред. А.Г. Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970472750.html 3. Нейрореаниматология : практическое руководство - 2-е изд. , перераб. и доп. [Электронный ресурс] В. В. Крылов, С. С. Петриков, Г. Р. Рамазанов, А. А. Солодов. Москва : ГЭОТАР-Медиа, 2023. URL : https://www.studentlibrary.ru/book/ISBN9785970477540.html
Topic No.3 Intensive care in patients with acute cardiovascular insufficiency. Emergency cardiology

Duration of the practical class (in academic hours):	6

Purpose of the practical class:
1. consolidate acquired knowledge on acute cardiovascular insufficiency;
2. during the discussion, outline the main types of tachy- and bradyarrhythmias that lead to acute cardiovascular insufficiency, their pathogenesis;
3. thoroughly go over ECG signs of arrhythmias requiring emergency medical aid;
4. study medical aid algorithms in case of life-threatening tachy- and bradyarrhythmias;
5. practice skills of conducting electrical cardioversion and cardiac pacing.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, LIFEPAK-15 defibrillator with accessories; Linea medical gas supply system; set of equipment for defibrillation training and heart rhythm simulator; multifunctional robot-simulator of an adult (SimMan, basic); manual resuscitator for children and adults; 12-lead patient heart rhythm simulator for LIFEPAK defibrillators, and subject guides for the discipline.

Independent work of the student: preparation of a report on the lecture and working with study materials.

Methods of evaluation of acquired knowledge and skills: review of reports, discussions, quizzes, tests.

Recommended reading:
1. Интенсивная терапия : национальное руководство. - Т. 1. : в 2 т. /. - 2-е изд. , перераб. и доп. [Электронный ресурс] Под ред. И. Б. Заболотских, Д. Н. Проценко М. : ГЭОТАР-Медиа, 2022. URL: https://www.studentlibrary.ru/book/ISBN9785970471906.html
2. Анестезиология: национальное руководство [Электронный ресурс] Под ред. А.Г. Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970472750.html
3. Внезапная сердечная смерть [Электронный ресурс] Бокерия Л. А., Ревишвили А. Ш., М.: ГЭОТАР-Медиа, 2020 Неминущий Н. М., Проничева И. В. URL: https://www.studentlibrary.ru/book/ISBN9785970456293.html

Topic No.4 Impaired fluid and electrolyte balance and acid-base balance

Duration of the practical class (in academic hours):	6

Purpose of the practical class:
1. consolidate acquired knowledge on impairments of fluid and electrolyte balance and acid-base balance;
2. during the discussion, outline the main principles of correcting impaired fluid and electrolyte balance and acid-base balance;
3. thoroughly go over definitions and concepts of impaired fluid and electrolyte balance and nutritional deficiency;
4. study patterns of physiological correction of impaired fluid and electrolyte balance and acid-base balance;
5. develop the approach to managing patients with impaired fluid and electrolyte balance and acid-base balance.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: preparation of a report on the lecture and working with study materials.

Methods of evaluation of acquired knowledge and skills: review of reports, discussions, quizzes, tests.

Recommended reading:
1. Интенсивная терапия : национальное руководство. - Т. 1. : в 2 т. /. - 2-е изд. , перераб. и доп. [Электронный ресурс] Под ред. И. Б. Заболотских, Д. Н. Проценко М. : ГЭОТАР-Медиа, 2022. URL: https://www.studentlibrary.ru/book/ISBN9785970471906.html
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4. Парентеральное и энтеральное питание. Национальное руководство [Электронный ресурс] Под ред. С.С. Петрикова, М.Ш. Хубутия, Т.С. Поповой М.: ГЭОТАР-Медиа, 2023 URL: https://www.studentlibrary.ru/book/ISBN9785970472774.html

Topic No.5 Fundamentals of infusion therapy, therapeutic enteral and parenteral nutrition

Duration of the practical class (in academic hours):	6

Purpose of the practical class:
1. consolidate acquired knowledge on infusion therapy, therapeutic enteral and parenteral nutrition;
2. during the discussion, outline the main principles of selecting infusion therapy, therapeutic enteral and parenteral nutrition;
3. thoroughly go over definitions and concepts of impaired fluid and electrolyte balance and nutritional deficiency;
4. study patterns of infusion therapy, therapeutic enteral and parenteral nutrition;
5. develop the approach to managing patients with impaired fluid and electrolyte balance and nutritional deficiency.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: preparation of a report on the lecture and working with study materials.

Methods of evaluation of acquired knowledge and skills: review of reports, discussions, quizzes, tests.

Recommended reading:
1. Интенсивная терапия : национальное руководство. - Т. 1. : в 2 т. /. - 2-е изд. , перераб. и доп. [Электронный ресурс] Под ред. И. Б. Заболотских, Д. Н. Проценко М. : ГЭОТАР-Медиа, 2022. URL: https://www.studentlibrary.ru/book/ISBN9785970471906.html
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Topic No.6 Intensive care in patients with acute liver and kidney failure

Duration of the practical class (in academic hours):	6

Purpose of the practical class:
1. consolidate acquired knowledge on acute liver and kidney failure;
2. during the discussion, outline the main etiological causes, clinical manifestation, and pathogenesis of acute liver and kidney failure;
3. thoroughly go over diagnostic criteria of acute liver and kidney failure;
4. study patterns of development, progression, and outcomes of acute liver and kidney failure;
5. develop the approach to managing patients with acute liver and kidney failure.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: preparation of a report on the lecture and working with study materials.

Methods of evaluation of acquired knowledge and skills: review of reports, discussions, quizzes, tests.

Recommended reading:
1. Интенсивная терапия: национальное руководство. - Т. 2. : в 2 т. /. - 2-е изд. , перераб. и доп. [Электронный ресурс] Под ред. И. Б. Заболотских, Д. Н. Проценко М. : ГЭОТАР-Медиа, 2022. URL: https://www.studentlibrary.ru/book/ISBN9785970471906.html
2. Анестезиология: национальное руководство [Электронный ресурс] Под ред. А.Г. Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970472750.html
3. Парентеральное и энтеральное питание. Национальное руководство [Электронный ресурс] Под ред. С.С. Петрикова, М.Ш. Хубутия, Т.С. Поповой М.: ГЭОТАР-Медиа, 2023 URL: https://www.studentlibrary.ru/book/ISBN9785970472774.html

Topic No.7 Clinical and diagnostic concept and treatment of sepsis and multiple organ failure

Duration of the practical class (in academic hours):	6

Purpose of the practical class:
1. consolidate acquired knowledge on sepsis and multiple organ failure;
2. during the discussion, outline the main etiological causes, clinical manifestation, and pathogenesis of sepsis and multiple organ failure;
3. thoroughly go over diagnostic criteria for sepsis and multiple organ failure;
4. study patterns of development, progression, and outcomes of sepsis and multiple organ failure;
5. develop the approach to managing patients with sepsis and multiple organ failure.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: preparation of a report on the lecture and working with study materials.

Methods of evaluation of acquired knowledge and skills: review of reports, discussions, quizzes, tests.

Recommended reading:
1. Интенсивная терапия : национальное руководство. Т. 2 : в 2 т. /. - 2-е изд. , перераб. и доп. [Электронный ресурс] Под ред. И. Б. Заболотских, Д. Н. Проценко М. : ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970471913.html
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Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970472750.html 3. Парентеральное и энтеральное питание. Национальное руководство [Электронный ресурс] Под ред. С.С. Петрикова, М.Ш. Хубутия, Т.С. Поповой М.: ГЭОТАР-Медиа, 2023 URL: https://www.studentlibrary.ru/book/ISBN9785970472774.html 4. Перитонит и абдоминальный сепсис [Электронный ресурс] Лебедев Н.В., Климов А.Е., Персов М.Ю. М.: ГЭОТАР-Медиа, 2023 URL: https://www.studentlibrary.ru/book/ISBN9785970480694.html
Topic No.8 General aspects of anesthesiology

Duration of the practical class (in academic hours):	6
Purpose of the practical class: 1. consolidate acquired knowledge of general aspects of anesthesiology; 2. during the discussion, outline the main principles of pre-operative patient management; 3. thoroughly go over anesthesia techniques and criteria for selecting them; 4. study main complications of different anesthesia techniques; 5. develop the approach to selecting an anesthesia technique depending on the planned surgery and the patient status.	
Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.	
Independent work of the student: preparation of a report on the lecture and working with study materials.	
Methods of evaluation of acquired knowledge and skills: review of reports, discussions, quizzes, tests.	
Recommended reading: 1. Анестезиология: национальное руководство [Электронный ресурс] Под ред. А.Г. Яворовского, Ю.С. Полушина М.: ГЭОТАР-Медиа, 2022 URL: https://www.studentlibrary.ru/book/ISBN9785970472750.html	

4. GUIDELINES FOR CONTINUOUS AND INTERIM ASSESSMENT

Table 3. Guidelines for Conducting Continuous and Interim Assessment during **Б1.О.36 Anesthesiology, resuscitation, and intensive care** Course

Type of assessment	Assessment format
Continuous assessment	- conducting and evaluating oral or written quizzes during lectures and practical classes; - assessment and evaluation of completion and results of assignments given during practical classes; - assess and evaluate completion and results of individual assignments and exam tasks given during practical classes; - assessment and evaluation of lecture notes quality.
Interim certification	is conducted in oral pass/fail test format; it allows to assess the development of students' competencies correlating with types of professional activity.

5 ASPECTS OF THE IMPLEMENTATION OF THE COURSE FOR STUDENTS WITH DISABILITIES AND SPECIAL NEEDS

5.1. Availability of accessible environment

For students with disabilities and special needs, if a written application is submitted, lectures and practical classes are carried out taking into account health limitations, individual capabilities and medical status (hereinafter referred to as individual characteristics) of the student. Compliance with the following general requirements is ensured: teaching aids for collective and individual use are provided, required technical assistance is provided by an assistant, buildings and premises where lectures and practical classes are taking place meet accessibility requirements, other arrangements lack of which makes it impossible or difficult to master the discipline are made.

5.2. Compliance with general requirements

When lectures and practical classes are carried out at the written application of the student, the following general requirements are met: lectures and practical classes for students with disabilities and special needs take place at the same location as for students who do not have disabilities, if this does not cause difficulties for students; an assistant (assistants), who provide(s) students with the necessary technical assistance taking into account individual characteristics of the student, is (are) provided; necessary teaching aids are provided, taking into account individual characteristics of the student.

5.3. Availability of the internal policies and procedures of FSBEI HE PSMU of the Ministry of Health of Russia to students with disabilities in a form accessible to them.

All internal policies and procedures of FSBEI HE PSMU of the Ministry of Health of Russia concerning the discipline are made available to students with disabilities in a form accessible to them.

5.4. Increase in the duration of interim assessment of students with disabilities and special needs in relation to the established duration

Format of the interim assessment of academic performance within the scope of the discipline for students with disabilities and special needs is selected taking into account individual characteristics (orally, by writing on paper, by typing on a computer, as a test, etc.). The duration of the interim assessment in relation to the established duration is increased at the written application of the student with disabilities. Time limit for the student's preparation for the test is increased by at least 0.5 hours

6. STAFFING REQUIREMENTS OF THE DISCIPLINE

Academic teaching personnel that ensure the implementation of the discipline education process meet the requirements of the Federal State Educational Standard of Higher Education for the 31.05.01 General Medicine for international students (in English) specialty; list of the aforementioned personnel is available on the website of the educational organization.

