Ministry of Science and Higher Education of the Russian Federation
Federal State Autonomous Institution of Higher Education
“National Research Nuclear University “MEPhI”

INSTITUTE OF ENGINEERING PHYSICS FOR BIOMEDICINE

APPROVED НТС ИФИБ

Protocol No. 3.1

dated 30.08.2024

ACADEMIC COURSE OUTLINE

ЭНДОКРИНОЛОГИЯ / ENDOCRINOLOGY

Educational program track (speciality) [1] 31.05.01 General Medicine

Semester	**Labour input, credits**	**Total course academic, hours**	**Lectures, hrs.**	**Practical sessions, hrs.**	**Laboratory sessions, hrs.**	**In the form of practical studies, hrs.**	**Independent studies, hrs.**	**Independent studies monitoring, hrs.**	**Course progress, Exam/Pass-fail exam/Term**
10	3	108	8	40	0		60	0	PFE
Total	3	108	8	40	0	40	60	0	

ABSTRACT

The program of the discipline is based on the requirements for the results of mastering the specialty program. The graduate (physician) must be ready to solve the problems of diagnosis, treatment, and prevention of diseases. During the study of the discipline, students acquire knowledge, skills, and abilities to diagnose the most common endocrine diseases, to manage patients with endocrine diseases, and to choose the optimal method of treatment and prevention of diseases. The continuity of acquiring knowledge and professional practical skills is ensured by practical training in real hospital and polyclinic conditions.

1. ACADEMIC COURSE GOALS AND OBJECTIVES

The objective of this course is to develop competencies in the diagnosis, treatment, and prevention of the most common endocrine diseases.

Objectives

- To develop a system of knowledge about the etiology, epidemiology, pathogenesis, and clinical manifestations of endocrine diseases, as well as methods of diagnosis, treatment, and prevention of the most common endocrine diseases;
- To develop the ability to identify the main pathological conditions, symptoms, and syndromes, as well as nosological forms of endocrine diseases, and formulate a preliminary diagnosis;
- To develop the skills and abilities to develop an examination and treatment plan for patients with endocrine diseases, and to interpret the results of additional studies in accordance with clinical guidelines for establishing a diagnosis;
- To develop the skills and abilities to provide medical care in the event of emergency conditions in endocrinology, and to determine indications for hospitalization of patients;
- To develop the skills and abilities to select rational drug, non-drug, and other treatments for endocrine diseases, taking into account the severity of the disease and in accordance with clinical guidelines; and to evaluate the effectiveness and safety of the prescribed treatment;
- develop skills in conducting clinical observation of individuals with endocrine diseases;
- develop skills in implementing preventive measures aimed at preventing the development of endocrine diseases, complications, and relapses, as well as rehabilitation and healthy lifestyle promotion;
- develop communication skills with patients, taking into account ethics and deontology, and interaction skills with colleagues;
- develop clinical thinking, the ability to work with scientific literature and apply regulatory documents in the field of endocrinology in professional activities, and the ability to maintain medical records;
- gain an understanding of clinical and epidemiological monitoring of patients with endocrine diseases (federal registries of patients with endocrine diseases).

2. PLACE OF THE ACADEMIC COURSE IN THE MAIN HIGHER EDUCATION CURRICULUM

To successfully master this discipline, the knowledge, skills and abilities formed in the study of such disciplines as: Anatomy (anatomical structure, innervation, blood supply of endocrine organs);

Histology (histological structure of endocrine organs); Normal physiology (functions of the endocrine system in a healthy person, mechanisms of interaction of endocrine organs with other systems and organs, regulation of the endocrine system from the standpoint of the concept of functional systems); Biochemistry (regulation of metabolism, synthesis, secretion and biological effects of hormones, the role of hormones in the regulation of energy metabolism, changes in metabolism during hypo- and hypersecretion of hormones); Pathological anatomy (knowledge of pathological changes in the structure and morphology of endocrine organs, the ability to compare morphological and clinical manifestations of endocrine diseases at all stages of their development); Pathological physiology (structural and functional bases of diseases and pathological processes, causes, basic mechanisms of development and outcomes of typical pathological processes, dysfunctions of organs and systems); Pharmacology and Clinical Pharmacology, Radiopharmaceuticals (mechanisms of action, pharmacokinetics and pharmacodynamics of the main antithyroid and thyroid drugs, glucocorticoid and mineralocorticoid drugs, hypoglycemic drugs, various groups of antihypertensive drugs, anticoagulants, antiplatelet agents, antibiotics, etc.); Propaedeutics of Internal Diseases, Radiation Diagnostics (skills in questioning and physical examination of the patient, identifying objective signs of the disease, analysis and interpretation of the results of laboratory and instrumental research methods); Internal Diseases (faculty course, methodology of clinical diagnosis, algorithms for diagnosis and management of patients with typical nosologies in the field of cardiology, pulmonology, gastroenterology); Neurology, medical genetics, neurosurgery (diagnostic algorithms and management of patients with tumors of the neuroendocrine system, diabetic neuropathy, determining the role of genetic factors in the genesis of endocrine diseases), Obstetrics and gynecology (endocrine regulation of the reproductive system, the role of endocrine diseases in the genesis of gynecological diseases, pathologies of pregnancy and childbirth, collection of gynecological anamnesis, interpretation of the results of laboratory and instrumental examination of women with reproductive system dysfunction)

3. DEVELOPED COMPETENCIES AND INTENDED LEARNING OUTCOMES

Universal and/or general professional competencies:

Competency code and title	**Code and title of competency-based rubrics**
ОПК-4 [1] – Capable of using medical devices stipulated by the medical care procedures, as well as conducting patient examination for diagnosis establishment.	З-ОПК-4 [1] – Know: - modern diagnostic instrumental examination methods for patients, including functional, radiological, ultrasound, radionuclide diagnostics, and endoscopy; - diagnostic capabilities of instrumental examination methods; - medical devices stipulated by the procedure for providing medical care to the adult population in the "Therapy" specialty, and the equipment standard for a therapeutic room; - main medical devices stipulated by the procedures for providing medical care to the adult population in major surgical specialties, obstetrics, and gynecology; - indications for referring patients for instrumental examinations and functional diagnostics; - techniques for physical examination of patients using medical devices stipulated by procedures and considering medical care standards У-ОПК-4 [1] – Be able to: - use medical devices stipulated by the medical care procedure; - determine the required volume and content of instrumental and functional diagnostics to establish a

	diagnosis; - interpret results of the most common functional and instrumental diagnostic methods В-ОПК-4 [1] – Possess skills in: - using basic medical devices (stethoscope, blood pressure monitor, sphygmomanometer, pulse oximeter, height-weight scale, measuring tape, neurological hammer, scalpel, forceps, and other devices); - operating electrocardiographs and devices for measuring external respiratory function; - interpreting results of the most common functional and instrumental diagnostic methods
ОПК-6 [1] – Capable of organizing general nursing, providing primary medical care, ensuring the organization of work and making professional decisions in emergencies at the pre-hospital stage, in emergency situations, epidemics and in areas of mass destruction	З-ОПК-6 [1] – Know: - a set of measures for general nursing with diseases of various organs and systems; Signs of clinical and biological death; - indications for patient hospitalization for the most common diseases with typical progression. У-ОПК-6 [1] – Be able to: - organize care for patient when providing medical care in an outpatient setting; - determine the need for patient hospitalization; - ensure the organization of work in emergency situations, epidemics, and in mass casualty zones. В-ОПК-6 [1] – Possess skills in: - general care of a patient (general nursing); - providing first aid; - making medical decisions in emergencies at the prehospital stage, including in emergency situations, epidemics, and in mass casualty zones.
ОПК-7 [1] – Capable of prescribing treatment and monitoring its effectiveness and safety.	З-ОПК-7 [1] – Know: - pharmacological groups of medicinal drugs and their intended purposes; - mechanisms of action of pharmacological and non-pharmacological treatments, indications and contraindications for their use, side effects, and complications caused by their application; - methods for monitoring the effectiveness and safety of various treatment approaches. У-ОПК-7 [1] – Be able to: - make rational choices for pharmacological and non-pharmacological treatments based on clinical guidelines and in accordance with medical care standards; - develop a treatment plan for a disease or condition considering the diagnosis, age, disease course characteristics, and comorbidities, based on clinical guidelines and medical care standards; - prescribe medications, medical devices, and therapeutic nutrition considering the diagnosis, age, disease course characteristics, and comorbidities, based on clinical guidelines and medical care standards; - justify prescribed pharmacological and non-pharmacological treatments; - evaluate the effectiveness and safety of medications, medical devices, therapeutic nutrition, and other treatment methods. В-ОПК-7 [1] – Possess skills in: - administering medications through various routes of administration; - developing treatment plans for diseases or conditions considering diagnosis, age, disease course characteristics, and comorbidities; - assessing the effectiveness and safety of prescribed treatments.

Professional competencies in compliance with the goals and professional knowledge areas:

Professional activity	**Professional activity**	**Professional**	**Code and title of**

goal	knowledge area	competency code and title; Based on the professional standard, experience analysis	competency-based rubrics
medical			
Diagnostics of diseases and pathological conditions of the patients.	Individuals (patients); the population; the set of means and technologies aimed at creating conditions for preserving and strengthening the health of the adult population	ПК-3.2 [1] - Capable of conducting patient examinations to establish a diagnosis *The base:* Professional standard: 02.009	З-ПК-3.2[1] - Know: - clinical diagnosis establishment algorithm; - patient history-taking and physical examination methodology; - laboratory and instrumental research methods for health assessment to establish a diagnosis; - semiotics of diseases of different organs and systems; - structure, principles of the current International Statistical Classification of Diseases and Related Health Problems (hereinafter - ICD).; У-ПК-3.2[1] - Be able to: - conduct patient history-taking and physical examination; - interpret history, physical examination data, laboratory and instrumental results to recognize a condition or establish the presence/absence of a disease, establish a diagnosis; - distinguish and recognize in each specific case tissue damage, the reaction to it, and the form of adaptability; - develop a patient examination plan, justify the necessity and scope of laboratory and instrumental examination; - identify main pathological conditions, symptoms and syndromes, nosological forms in the patient according to the current ICD.; В-ПК-3.2[1] - Possess

			skills in: - patient history-taking and physical examination; Formulating a preliminary diagnosis; - developing a patient examination plan; Interpreting laboratory and instrumental results; - establishing a diagnosis considering the current ICD
Providing primary medical care in outpatient settings and day hospital settings.	Individuals (patients); the population; the set of means and technologies aimed at creating conditions for preserving and strengthening the health of the adult population	ПК-3.3 [1] - Able to provide primary medical care in an outpatient setting *The base:* Professional standard: 02.009	З-ПК-3.3[1] - Know: - general issues of organizing medical care for the population and organizing medical care for the adult population in outpatient settings, including at home; - features of medical care using telemedicine technologies; - Clinical picture, differential diagnosis, features of the course of the disease, complications and outcomes of internal diseases; - diagnostic criteria for the most common diseases of internal organs and systems; - indications for referring patients for specialist consultations according to clinical guidelines and considering relevant medical care standards; - indications for referring patients for specialized medical care in inpatient settings and day hospitals according to clinical guidelines and considering relevant medical care standards; - features of managing and treating elderly patients in outpatient settings. ; У-ПК-3.3[1] - Be able to: - perform differential diagnosis of internal diseases; - monitor the

			course of physiological pregnancy; - justify the need for referring patients to specialist consultations; - recognize the main and concomitant diseases; - assess disease or condition severity - the degree of organ and/or system damage or functional impairment due to the disease/condition or its complications; - determine management, examination and treatment tactics for patients with specific diseases (nosological units) depending on disease severity and condition, according to clinical guidelines and considering relevant medical care standards.; В-ПК-3.3[1] - Possess skills in: - conducting differential diagnosis with other diseases/conditions, including emergencies; - interpreting data obtained from patient consultations with specialists; - prescribing additional tests to clarify the diagnosis; - formulating a clinical diagnosis; - prescribing treatment according to clinical guidelines and considering relevant medical care standards.

4. PEDAGOGIC POTENTIAL OF THE COURSE

Pedagogic tracks/objectives	**Pedagogic goals (code)**
Professional education	Establishing conditions for: formation of responsibility for professional choice, professional development and professional decisions (B18)
Professional education	Establishing conditions for: formation of motivation to improve the quality of medical care to the population and the desire to follow the rules and norms of interaction between the doctor, colleagues and the patient, contributing to the creation of the most favorable environment for the patient's recovery (B34)

5. ACADEMIC COURSE STRUCTURE AND CONTENT

Academic course sections, their scope, terms of study and assessment:

No.	Academic course section name	Weeks	Lectures/ Practical (seminars)/ Laboratory sessions, hrs.	Compulsory current assessment (form*, week)	Maximum grade per section**	Section assessment (form*, week)	Competency-based rubrics
	10 Semester						
1	Diabetology	1-8	4/20/0	T-8 (25)	25	T-8	З-ОПК-4, У-ОПК-4, В-ОПК-4, З-ОПК-6, У-ОПК-6, В-ОПК-6, З-ОПК-7, У-ОПК-7, В-ОПК-7, З-ПК-3.2, У-ПК-3.2, В-ПК-3.2, З-ПК-3.3, У-ПК-3.3, В-ПК-3.3
2	Thyroidology	9-15	4/20/0	T-14 (25)	25	T-14	З-ОПК-4, У-ОПК-4, В-ОПК-4, З-ОПК-6, У-ОПК-6, В-ОПК-6, З-ОПК-7, У-ОПК-7, В-ОПК-7, З-ПК-3.2, У-ПК-3.2, В-ПК-3.2, З-ПК-3.3, У-ПК-3.3, В-ПК-3.3
	Totals for 10 Semester		8/40/0		50		
	Assessment events for 10 Semester				50	PFE	З-ОПК-4, У-ОПК-4, В-ОПК-4, З-ОПК-6, У-ОПК-6,

							В-ОПК-6, З-ОПК-7, У-ОПК-7, В-ОПК-7, З-ПК-3.2, У-ПК-3.2, В-ПК-3.2, З-ПК-3.3, У-ПК-3.3, В-ПК-3.3

* – abbreviated name of assessment

** – 100 maximum points per semester including a pass/fail exam and (or) an exam

Abbreviated current assessment forms and section assessment

Abbreviation	**Full name**
T	Testing
PFE	Pass/fail examination

SYLLABUS

Weeks	**Topics / Content**	**Lect., hrs.**	**Pr./sem., hrs.**	**Lab., hrs.**
	10 Semester	8	40	0
1-8	**Diabetology**	4	20	0
1 - 4	**Diabetes mellitus.** Definition of diabetes mellitus. Epidemiology of diabetes mellitus. Classification of diabetes mellitus. Etiology, pathogenesis, clinical picture, diagnosis of diabetes mellitus. Treatment of diabetes mellitus. Principles of insulin therapy. Tablet therapy for type 2 diabetes mellitus. Monitoring of patients with diabetes mellitus. Education of patients with diabetes mellitus. Pregnancy and diabetes mellitus. Gestational diabetes mellitus. Diabetes mellitus in the elderly. Prevention of type 2 diabetes mellitus. Clinical and epidemiological monitoring of patients with diabetes mellitus.	All 2 Online 0	10 0	0 0
5 - 8	**Complications of diabetes mellitus.** Acute complications of diabetes mellitus. Diabetic ketoacidosis. Ketoacidotic coma. Hypoglycemia and hypoglycemic coma. Hyperosmolar hyperglycemic state. Lactic acidosis. Differential diagnosis of comas in diabetes mellitus. Diabetic microangiopathies. Diabetic retinopathy. Diabetic nephropathy. Diabetic macroangiopathies. Ischemic heart disease in diabetes mellitus. Cerebrovascular diseases. Diabetes mellitus and arterial hypertension. Chronic heart failure. Diseases of the lower extremity arteries. Diabetic neuropathy, neuroosteoarthropathy. Cardiovascular autonomic neuropathy.	All 2 Online 0	10 0	0 0

	Diabetic foot syndrome.			
9-15	**Thyroidology**	4	20	0
9 - 12	**Anatomy and physiology of the thyroid gland.** Biosynthesis, secretion, and mechanisms of action of thyroid hormones. Methods of examining patients with thyroid diseases. Classification of thyroid diseases. Etiology, epidemiology, clinical features, diagnosis, and treatment of thyroid diseases: diffuse toxic goiter, hypothyroidism, nodular goiter, thyroiditis, and thyroid cancer.	All		
		2	10	0
		Online		
		0	0	0
13 - 15	**Pathology of the adrenal glands. Pathology of the hypothalamic-pituitary system. Pathology of phosphorus-calcium metabolism, the parathyroid glands, and bone metabolism. Obesity. Diseases of the repro** Anatomy and physiology of the adrenal glands. Biosynthesis, secretion, and mechanisms of action of adrenal hormones. Methods of examining patients with adrenal gland diseases. Classification of adrenal gland diseases. Etiology, epidemiology, clinic, diagnostics, treatment of adrenal diseases: Cushing's syndrome, hyperaldosteronism, hormone-inactive adrenal tumors, hypocorticism, acute adrenal insufficiency, pheochromocytoma, hyperaldosteronism, hypoaldosteronism, congenital adrenal cortex dysfunction. Anatomy and physiology of the hypothalamic-pituitary system. Biosynthesis, secretion, and mechanisms of action of pituitary and hypothalamic hormones. Methods of examination of patients with diseases of the hypothalamic-pituitary system. Classification of diseases of the hypothalamic-pituitary system. Etiology, epidemiology	All		
		2	10	0
		Online		
		0	0	0

Abbreviated names of online options:

Abbreviation	**Full name**
EC	E-course
FtM	Full-text material
FtL	Full-text lectures
VM	Video materials
AM	Audio materials
Prs	Presentations
T	Tests
ERM	E-reference materials
IS	Interactive site

PRACTICAL SESSIONS TOPICS

Weeks	**Topics / Content**
	10 Semester
1 - 8	**Diabetology** Etiology, pathogenesis, clinical picture, diagnosis of diabetes mellitus. Treatment of diabetes mellitus. Principles of insulin therapy. Tablet therapy for type 2 diabetes mellitus. Monitoring of patients with diabetes mellitus. Clinical and epidemiological monitoring of

	patients with diabetes mellitus. Differential diagnosis of diabetes mellitus comas.
9 - 15	**Thyroidology** Etiology, epidemiology, clinic, diagnostics, treatment of thyroid diseases: diffuse toxic goiter, hypothyroidism, nodular goiter, thyroiditis, thyroid cancer. Etiology, epidemiology, clinic, diagnosis, and treatment of adrenal diseases: Cushing's syndrome, hyperaldosteronism, hormone-negative adrenal tumors, hypocorticism, acute adrenal insufficiency, pheochromocytoma, hyperaldosteronism, hypoaldosteronism, and congenital adrenal cortex dysfunction. Etiology, epidemiology, clinic, diagnostics, treatment of diseases of the hypothalamic-pituitary system: acromegaly, pangipopituitarism, somatotropic insufficiency, diabetes insipidus, hyperprolactinemia. Methods of examination of patients with diseases of phosphorus-calcium metabolism. Classification of diseases. Etiology, epidemiology, clinic, diagnostics, treatment of diseases: Hyperparathyroidism. Osteoporosis

6. EDUCATIONAL TECHNOLOGIES

In the process of teaching the discipline, methods are used based on modern achievements of science and information technologies in education. They are aimed at improving the quality of training specialists by developing students' creative abilities and independence. For this purpose, both traditional teaching methods (lectures, clinical practical classes) and interactive forms of conducting seminars and clinical reviews are used:

- training forms of conducting practical classes (clinical situational task, case, role-playing game in the form of clinical review or patient care);
- interactive clinical review with demonstration of patients;
- involvement of students in scientific preclinical and clinical research, preparation of presentation materials, reports, essays or abstracts.

7. ASSESSMENT TOOLKIT

The assessment toolkit ensures verification of the intended learning outcomes achievement (competency-based rubrics) using current, midterm and interim assessment of the course.

The link between developed competencies and their assessment is presented in the following table:

Competency	**Achievement rubrics**	**Assessment activity (Syl 1)**
ОПК-4	З-ОПК-4	PFE, T-8, T-14, T-8, T-14
	У-ОПК-4	PFE, T-8, T-14, T-8, T-14
	В-ОПК-4	PFE, T-8, T-14, T-8, T-14
ОПК-6	З-ОПК-6	PFE, T-8, T-14, T-8, T-14
	У-ОПК-6	PFE, T-8, T-14, T-8, T-14
	В-ОПК-6	PFE, T-8, T-14, T-8, T-14
ОПК-7	З-ОПК-7	PFE, T-8, T-14, T-8, T-14
	У-ОПК-7	PFE, T-8, T-14, T-8, T-14
	В-ОПК-7	PFE, T-8, T-14, T-8, T-14
ПК-3.2	З-ПК-3.2	PFE, T-8, T-14, T-8, T-14
	У-ПК-3.2	PFE, T-8, T-14, T-8, T-14
	В-ПК-3.2	PFE, T-8, T-14, T-8, T-14
ПК-3.3	З-ПК-3.3	PFE, T-8, T-14, T-8, T-14
	У-ПК-3.3	PFE, T-8, T-14, T-8, T-14
	В-ПК-3.3	PFE, T-8, T-14, T-8, T-14

Educational achievement rubrics scales

The scale of each assessment activity varies from 0 to the maximum established point, inclusive. The final assessment of the course is performed on a 100-point scale and represents the sum of the points earned by the student in the section assessments, framework of current and interim assessment.

Sections and interim assessments are considered passed when the student achieves a minimum score equal to 60% of the maximum. The final grade is assigned only upon passing all sections and the interim assessment.

The final grade is assigned in accordance with the following scale:

<table>
<tr><th>Total score</th><th>Rating on a 4-point scale</th><th>Pass/fail examination</th><th>ECTS assessment</th></tr>
<tr><td>90-100</td><td>5 – «excellent»</td><td rowspan="7">«pass»</td><td>A</td></tr>
<tr><td>85-89</td><td rowspan="3">4 – «good»</td><td>B</td></tr>
<tr><td>75-84</td><td>C</td></tr>
<tr><td>70-74</td><td rowspan="2">D</td></tr>
<tr><td>65-69</td><td rowspan="2">3 – «satisfactory»</td></tr>
<tr><td>60-64</td><td>E</td></tr>
<tr><td>below 60</td><td>2 – «fail»</td><td>«fail»</td><td>F</td></tr>
</table>

An “excellent” grade indicates a deep and solid mastery of the program material by a student who presents their answers consistently, clearly, and logically, is able to closely link theory with practice, and uses materials from monographic literature in their answers.

A “good” grade corresponds to a student’s solid knowledge of the material, who presents their answers competently and to the point, without any significant inaccuracies.

A “satisfactory” grade corresponds to the basic level of mastery of the material by the student, in which the main material has been mastered, but its details have not been assimilated, the answers contain inaccuracies, insufficiently correct wording and logical inconsistencies.

A grade “pass” corresponds to at least a basic level of mastery of the program material, in which the student possesses the necessary knowledge, skills, and abilities, and is able to apply theoretical principles to solve typical practical problems.

A grade “fail” is given to a student who lacks a significant understanding of the curriculum material, makes significant errors in their answers, or fails all required assignments. These students are generally unable to continue their studies without additional classes.

8. ACADEMIC COURSE EDUCATIONAL, METHODOLOGICAL AND INFORMATIONAL SUPPORT

CORE READING:

1. ЭИ Н99 Internal Diseases. Volume II : , Martynov A.I. [и др.], Москва: ГЭОТАР-Медиа, 2022

2. ЭИ В 60 Внутренние болезни. В 2 томах. Том 2. : , , Москва: ГЭОТАР-Медиа, 2023

3. ЭИ В 26 Эндокринология : учебник для вузов, Вебер В. Р., Копина М. Н., Москва: Юрайт, 2024

FURTHER READING:

1. ЭИ W69 Williams textbook of endocrinology / : , , Philadelphia, PA :: Elsevier,, 2016

2. ЭИ М 71 Неотложная эндокринология : , Мкртумян А.М., Нелаева А.А., Москва: ГЭОТАР-Медиа, 2022

3. ЭИ С 22 Сахарный диабет : учеб. пособие, Мозерова Е.С. [и др.], Москва: НИЯУ МИФИ, 2019

4. ЭИ Э64 Эндокринология : национальное руководство, , Москва: ГЭОТАР-Медиа, 2024

SOFTWARE:

No special softwares is required

LMS AND ONLINE RESOURCES

https://online.mephi.ru/

http://library.mephi.ru/

9. LOGISTICAL SUPPORT

1. Персональный компьютер: Процессор CPU Intel Core i7-8700 (3.2GHz/12MB/6 cores) Материнская плата Gig (Клиническая база)

2. Мышь, клавиатура (Клиническая база)

3. Проектор SMART P109 (Клиническая база)

4. Видеокамера Microsoft LifeCam Cinema HD (Клиническая база)

5. Кушетка медицинская (Клиническая база)

6. Монитор (Клиническая база)

7. Иное оснащение, предусмотренное порядками оказания медицинской помощи по соответствующему профилю (Клиническая база)

10. EDUCATIONAL AND METHODOLOGICAL RECOMMENDATIONS FOR STUDENTS

Before beginning the study of the topic, it is necessary to familiarize yourself with the main points of the practical lesson plan and the list of recommended readings.

When preparing for the practical lesson, it is necessary, first of all, to refer to the lecture notes, sections of textbooks, and teaching aids to gain a general understanding of the topic's place and significance in the course being studied. Then, work with additional literature and take notes on the recommended sources. While studying the recommended material, it is important to understand the structure of the topic being studied, identify the main points, follow their logic, and thereby gain a deeper understanding of the problem being studied. It is necessary to keep notes of the material being studied in the form of notes, which, along with visual memory, engages motor memory and allows you to accumulate a personalized collection of auxiliary materials for quick review of what has been read and for mobilizing accumulated knowledge.

Clinical Practical Classes

A key stage of the practical class is students' independent work on mastering practical skills: in simulated conditions, at the patient's bedside, in the functional diagnostics room, etc. Depending on the specific topic of the class, the student independently (or under the supervision of the instructor) interviews the patient, conducts a clinical examination, observes instrumental diagnostics, and studies the results of additional tests, summarizes the data, presents it as fragments of the patient's medical history, and reports the results to the instructor. Each student's progress is assessed individually, based on the degree of development of their practical skills and their theoretical foundations.

Clinical case studies are conducted for the entire group or through students' participation in clinical case studies and periodic scientific and practical conferences at the medical organizations where their practical training takes place. During these case studies, the instructor evaluates each student's active participation and clinical reasoning skills.

Situational problems proposed by the instructor are solved, which develop clinical reasoning and force the student to apply knowledge acquired in various specialty subjects. Active and interactive forms of conducting classes are widely used in the educational process (work in small groups, activation of creative activities, use of computer training programs, conference classes).

The teacher controls students' independent work, preparation of essays, research projects, working with patients together with the teacher, interpreting data from additional research methods, and filling out medical documentation.

The main forms of recording: plan (simple and expanded), extracts, and theses. In the process of preparation, it is important to compare sources, think over the material being studied and build an algorithm of actions, carefully think over your oral presentation.

Recommendations for preparing for the test.

The test – 10 -15 – 20 - 25 points. Each question – 1 (2) points.

TOPICS: indicated in each specific section

Requirement for the answer: a clear detailed answer (2 points/task) or the selection of the correct answer to a test task (1 point/task).

Recommendations for preparing for the test/exam

Requirement for the answer and evaluation criteria:

An "excellent" grade of 45-50 points on the test/exam is awarded for: a correct, complete, and logically structured answer; the ability to use special terms; and the ability to illustrate theoretical concepts with practical material.

A "good" grade of 35-44 points on the exam is given for: a correct, complete, and logically structured answer with minor errors or inaccuracies; the ability to use special terms, but the conclusions or generalizations are not fully completed.

A "satisfactory" grade of 30-34 points on the exam is given for: a schematic and incomplete answer; the inability to use special terms or ignorance of them; one major error;

A grade of "unsatisfactory" < 30 points is given at the exam if: all questions on the exam paper are answered with gross errors; the student is unable to use special terminology; the student is unable to provide examples of practical application of scientific knowledge.

The student is allowed to take the exam if they have more than 30 points.

A student can earn between 30 and 50 points per semester.

The minimum score for an exam answer is 30, and the maximum score is 50.

11. EDUCATIONAL AND METHODOLOGICAL RECOMMENDATIONS FOR TEACHERS

When organizing and conducting the educational process, teachers must be able to plan and manage their time, which allows for the distribution of the teaching load and is an essential condition for successful teaching of the subject.

Teachers must actively participate in the educational process and prepare for it. The need for ongoing preparation for lectures, seminars, and practical classes is driven by the need to reflect modern approaches, views, and data on topics and sections. When preparing for the educational process, it is necessary to study modern methodological recommendations, scientific research results, new technologies, etc.

The goal of the teacher's work should be the effective comprehension of the material by students. The following types of learning activities are implemented during the teaching process: lectures, practical classes, and independent work. When implementing various types of educational work, the instructor must use educational technologies (creation of interactive presentations, educational computer programs, thinking development technologies (effective lecture, tables, group work, etc.)

During practical classes, students' assimilation of lecture material is monitored, patients are supervised, and practical skills are assessed.

Visual aids, surgical instruments, training devices, device simulators, or demonstrations of individual manipulations in real-life conditions are used to demonstrate and practice practical skills. To assess clinical thinking ability, students are offered situational problems, clinical cases, test assignments, case studies, and attendance at medical conferences, consultations, and scientific symposia.

The most important stage of the practical class is the students' independent work on mastering practical skills: in simulated conditions, at the patient's bedside, in the functional diagnostics room, etc. Depending on the specific topic of the class, the student independently (or under the supervision of the instructor) interviews the patient, conducts clinical The student is present during instrumental diagnostic tests and reviews the results of additional studies, summarizes the data, presents it as fragments of the patient's medical history, and reports the results to the instructor. Achievements are assessed individually for each student, based on the degree of development of practical skills and their theoretical foundations.

Clinical case studies are conducted for the entire group or through student participation in clinical case studies and periodic scientific and practical conferences at the medical institutions where

practical training is provided. During these sessions, the instructor evaluates each student's active participation and clinical reasoning skills.

Situational problems proposed by the instructor are solved, which develop clinical reasoning and challenge the student to apply knowledge acquired in various specialty subjects.

Active and interactive learning methods are widely used in the educational process (work in small groups, stimulating creative thinking, using computer-based learning programs, and class-conferences).

The instructor monitors students' independent work, preparation of essays, research projects, collaborative patient work with the instructor, interpretation of additional research data, and completion of medical documentation.

Work with educational literature is considered a form of academic work and is completed within the time allotted for its study. Each student is provided access to the electronic library collections of the institute and department. Students' training helps them develop skills in interacting with patients, taking ethical and deontological principles into account.

Independent work helps develop skills in working with patients, working with literature, analytical thinking, documentation skills, accuracy, and discipline.

Students' initial knowledge level is determined by testing, and ongoing assessment of their mastery of the subject is determined by oral questioning during classes, clinical case studies, solving typical situational problems, and answering test questions.

At the end of the course, students undergo a midterm and final assessment using a test, practical skills assessment, and solving situational problems.

Grading and criteria for tests, extended tests, homework, and the final test:

1) Test questions are graded according to the following scheme: 1 point for every 1 correct answer. Student did not start work – (-1) point

2) - Tests with detailed answers are graded according to the following system: complete answer – 2 points, incomplete answer – 1 point, no answer – 0 points, student did not start work – (-2) points.

3) - Homework must be completed by all students to be admitted to the final assessment. Late submissions will result in a deduction of (-1) point from the final score.

4) - Presentation report grading criteria. Recalculation from a 100-point to a 10 (5)-point system.

5) - Essay grading criteria. Maximum 10 points. Possibly upgraded to a 5-point system.

10 points are awarded if all abstract writing requirements are met: the problem is identified and its relevance justified, a brief analysis of the issue is provided and a logical position is presented, conclusions are formulated, the article is fully analyzed, the length is maintained, and formatting requirements are met.

9 points are awarded if the following abstract writing requirements are met: the problem is identified and its relevance justified, a brief analysis of the issue is provided and a logical position is presented, conclusions are formulated, the article is fully analyzed, but the length and formatting requirements are not met.

8 points – the basic abstract requirements are met, but some shortcomings are present. Specifically, there are inaccuracies in the presentation of the material; there is a lack of logical consistency in the judgments; the abstract is not within the specified length; and there are omissions in the formatting. 7 points – the basic abstract requirements are met, but the following shortcomings are present: there are inaccuracies in the presentation of the material; there is no logical consistency in the judgments; conclusions are not formulated, the abstract is not within the scope of the abstract; there are omissions in the formatting.

6 points – there are significant deviations from the abstracting requirements; the topic is only partially covered; there are factual errors in the abstract content, conclusions and a personal point of view on the problem are missing.

5 points – there are significant deviations from the abstract requirements: the topic is only partially covered; there are factual errors in the presentation of materials and methods, conclusions and a personal point of view on the problem are missing, the format is not maintained.

4 points – there are significant deviations from the abstract requirements: the relevance of the topic is not disclosed; Factual errors were made in the presentation of materials and methods, conclusions and personal perspective on the problem are missing, and the format is not followed.

3 points – there is no analysis of the relevance of the research topic, approaches, and methods used, while the formal length of the abstract is met.

2 points – the abstract topic is not covered, revealing a significant misunderstanding of the problem. However, the abstract length and formal requirements are met.

1 point – the abstract topic is not covered, revealing a significant misunderstanding of the problem.

0 points – abstract submitted by a student

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