
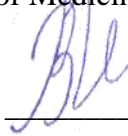


Ministry of science and high education RF Ulyanovsk State University	Form	
F-Educational plan of the discipline		



APPROVED BY
by the decision of the Academic Council of the USU
Institute of Medicine, Ecology and Physical Culture
17.05.2023 Record No. 9/250

Chairman  V. I. Midlenko
"17 " May 2023

EDUCATIONAL PLAN

Discipline	Clinical electrocardiography
Faculty	Medical faculty of T.Z. Biktimirov
Name of department	Faculty therapy
Course	6

Direction (specialty) 31.05.01 General medicine
the code of the direction (specialty), full name

Orientation (profile/specialty) not provided
full name

Form of training _____ full-time _____
full-time, part-time, part-time (specify only those that are being implemented)

Date of introduction into the academic process at Ulyanovsk State University 01.09.23

Revised at the Department meeting, Record No. 9 of 16.04.2024

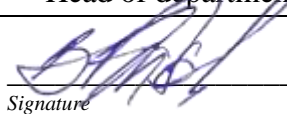
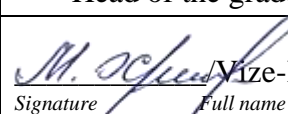
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Revised at the Department meeting, Record No. _____ of _____ « _____ » 20

Information about the authors:

Initials	Abbreviation of the department	Degree, scientific rank
Pavlova J.M.	Faculty therapy	PHD, Associate Professor of the Department

Agreed	Agreed
Head of department, developing discipline	Head of the graduating Department
<u></u> Signature /Ruzov V.I. Full name	<u></u> Signature /Nize-Khripunova M.A. / Full name
April, 28, 2023	April, 28, 2023

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1. OBJECTIVES AND AIM OF THE DISCIPLINE STUDY.

The objective is to teach a complete system of theoretical and practical foundations of clinical electrocardiography; methods of recording and analysis of electrocardiograms; differential diagnostics of cardiovascular system pathologies based on electrocardiography data.

Aims of the discipline mastering are:

- Studying the basics of normal electrocardiogram formation;
- Mastering the methods of taking the electrocardiogram and conducting functional tests in electrocardiography;
- Evaluation and analysis of normal electrocardiogram indicators;
- Study of the basic mechanisms of forming pathological electrocardiograms in various cardiovascular diseases;
- Carrying out differential diagnostics of cardiovascular system pathology based on electrocardiography data;
- Acquaintance with new methods of diagnostics of pathology of cardiovascular system on the basis of electrocardiography: Holter ECG monitoring, high resolution average ECG signal, heart rate variability, QT interval dispersion.

2. PLACE OF THE SUBJECT IN THE STRUCTURE OF GEP

The discipline "Clinical electrocardiography" belongs to the variable part of the block (B1.V) within the disciplines of choice (B1.V.DV.07.02) of the specialty according to the Federal State Educational Standard 3++ HE № 988 from 12.08.2020 and the Working curriculum of the specialty 31.05.01 "General medicine" section B1.O.28, approved by the Chancellor of Ulyanovsk State University (protocol № 8/238 from 14.04.2022).

To master these sections, students must have knowledge, skills and competencies of the basic and variable parts of the GEP of the Federal State Educational Standard 3++ HE (2020).


Normal and pathological anatomy, normal and pathological physiology, biological chemistry, pharmacology and propaedeutics of internal diseases, faculty therapy and occupational diseases precede the study of clinical electrocardiography. Knowledge, skills and competencies in these disciplines are determined by the requirements for their development at the previous departments and are controlled by the determination of the input knowledge of the study of internal diseases.

The section is prior to the following disciplines: hospital therapy, clinical pharmacology, infectious diseases; phthisiatrics; hospital pediatrics; infectious diseases in children; polyclinical and emergency pediatrics.


3. LIST OF EXPECTED RESULTS OF INSTRUCTION ON THE SUBJECT (UNIT), CORELATED WITH PLANNED RESULTS OF COMPLETING THE PROGRAM

The study of the subject «Clinical electrocardiography» within the completion of the educational program is directed towards the formation of the following general and professional competences in students:

Code and name of the general professional competence	Code and name of the indicator of achievement of general professional competence
UC-1 Ability to carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy	Indicator for achieving -1 (IfA) To know the clinical picture, features of the course and possible complications of the most common diseases occurring in a typical form in the adult population, accompanied by changes in electrocardiographic data; - ECG techniques - diagnostics of heart diseases as well as

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	<p>diseases accompanied by changes in the ECG, emergency conditions in the clinic of internal diseases;</p> <ul style="list-style-type: none"> - clinical and pharmacological characteristics of the main groups of drugs affecting changes in electrocardiographic parameters; <p>IfA - 2 To be able to analyze the main ECG changes in myocardial hypertrophy, ischemia, ischemic injury, myocardial necrosis, scar changes; analyze the main ECG changes in non-coronary myocardial lesions: myocarditis, pericarditis, cardiomyopathy; rhythm and conduction disturbances; Can determine life-threatening disorders in the analysis of ECG and to carry out a set of necessary measures in case of emergency conditions;</p> <p>IfA - 3 Master to interpretate the results of electrocardiographic diagnostic methods in the clinic of internal diseases; Should be familiar with the algorithms for setting electrocardiographic syndromes and symptoms with their subsequent referral for additional examination and to specialist doctors.</p>
<p>PC-2 Readiness to collect and analyze of patient complaints, his medical history, examination results, laboratory, instrumental, pathoanatomical and other studies data to recognize the condition or determinate presence or absence malady</p>	<p>IfA - 1 To know the methodology for conducting a standard ECG, functional diagnostic methods using ECG registration; methodology for carrying out functional tests when taking an ECG, extended methods of ECG diagnostics (additional leads, Frank's orthogonal leads, spectral-temporal mapping); modern methods of instrumental diagnostics of patients using the ECG technique - stress tests (bicycle ergometric test, treadmill test, daily ECG monitoring, transesophageal electrophysiological examination, high-resolution ECG);</p> <p>IfA - 2 Be able to interpret the results of electrocardiographic studies: standard ECG, ECG during stress tests, signal-averaged ECG, stress ECG, daily (Holter) ECG monitoring, heart rate variability;</p> <ul style="list-style-type: none"> - to determine, on the basis of the results obtained, the main ECG-phenomena for the diagnosis of pathology of the cardiovascular system; - to carry out differential diagnostics of ECG syndromes and symptoms; <p>IfA - 3 Master the technique of taking a standard electrocardiogram;</p> <ul style="list-style-type: none"> - methods of electrocardiographic diagnostics using additional methods of ECG, high-resolution ECG, stress, pharmacological ECG tests, Holter ECG monitoring; - methods of forming ECG conclusions

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4. Volume of the subject

4.1. Volume of the subject in credit points (total): 2 credit points


4.2. On types of academic workload (in hours): 72

Type of academic work	Number of hours (full-time study)	
	Total according to the plan	Including on semesters
		semester C (№12)
1	2	3
Work of students with a teacher	54	54
Classes:	54	54
lectures	0	0
practical classes and seminars	54	54
lab classes (practical lessons)	-	-
Self-study work	18	18
Concurrent control (number and type: a test, a colloquium, a report)	An ECG analysis	An ECG analysis
Course paper	-	-
Types of intermediate attestation (examination, test)	credit	credit
Total number of hours on the subject	72	72

4.3. Contents of the discipline (module). Distribution of hours on themes and kinds of study: Number of hours – 54 h

The form of training: full time

	Name of sections and themes	Total	Activity format					Form of current control
			Classroom studies			Inter active classes	Self-study work	
			lect.	pract.cl.	Laboratory work			
1	2	3	4	5	6	7	8	
Section 1: Functional research methods in a clinic of internal medicine: clinical electrocardiography								
1.	Method of detecting and analyzing a standard electrocardiogram.	8	-	6	-	-	2	tests, clinical cases of ECG
2.	Electrocardiographic picture in atrial and ventricular hypertrophy	8	-	6	-	-	2	tests, clinical cases of ECG
3.	Electrocardiogram for ischemic heart disease. Ischaemia, lesion, necrosis.	8	-	6	-	-	2	tests, clinical cases of ECG

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4.	Electrocardiogram for heart rhythm disorders.	8	-	6	-	-	2	tests, clinical cases of ECG
5.	Electrocardiogram for cardiac conduction disorders.	11	-	9	-	-	2	tests, clinical cases of ECG
6.	Electrocardiographic syndromes of myocardial infarction	11	-	9	-	-	2	tests, clinical cases of ECG
7.	ECG features in children and adolescents	8	-	6	-	-	2	tests, clinical cases of ECG
8.	Electrocardiographic pattern in non-coronary myocardial lesions.	8	-	6	-	-	2	tests, clinical cases of ECG
9.	Credit	2	-	-	-	-	2	List of questions, tests, clinical cases of ECG
	TOTAL by discipline	72/2 ZET		54		-	18	

If it is necessary to use partially or exclusively distance learning technologies in the educational process, it should be noted that the total number of hours (c.u.) set by the Department of discipline/specialty for each discipline/practice remains unchanged and is implemented in full. In this case, in the corresponding section of the educational program the total number of hours of work with students in accordance with the educational plan is allocated and the number of hours for conducting classes in a remote format using e-learning (online courses, lectures and seminars in videoconference mode, virtual practical classes, laboratory work in the form of virtual analogues, calculation and graphic works, individual tasks in the electronic information and educational environment, etc.) Learning hands-on training and practice of work experience for all areas of discipline/specialties of all forms of training can be partially or fully implemented in a remote format.

5. COURSE CONTENT

Section 1. Functional research methods in a clinic of internal medicine: clinical electrocardiography.

Topic 1. Method of detecting and analyzing a standard electrocardiogram.
Electrocardiographic deductions: standard, reinforced single pole, thoracic deductions, additional

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thoracic deductions. Functional samples: with potassium chloride, dipyridamol, anapriline
Evaluation and analysis of the main components of normal electrocardiogram: teeth P, Q, R, S, T, U: intervals PQ, RR, QT, PP; segments PQ, ST. The concept of tooth voltages, types of ST segment depression, variability of RR and QT intervals. Cardiac rhythm and conductivity analysis. Determination of the electrical axis of the heart: cardiac rotation around anterior, longitudinal and transverse axes. Atrial and ventricular electrocardiogram components analysis.


Topic 2. Electrocardiogram in hypertrophy of the heart. Electrocardiographic picture of hypertrophy of the left and right atria. Electrocardiographic pattern changes in left ventricular hypertrophy: basic signs and diagnostic criteria (Sokolov-Layon index, Romhilt-Index, Cornell's work, etc.). Electrocardiographic signs of right ventricular hypertrophy. Electrocardiographic criteria for hypertrophy of both atria and ventricles. Electrocardiogram in hyper-tonic disease, pulmonary heart, heart failure.

Topic 3. Electrocardiogram for ischemic heart disease. Ischaemia, lesion, necrosis. Basic electrocardiographic criteria for myocardial ischemia. ECG signs of subendocardial, subepicardial and intramural myocardial ischemia. ECG picture of Prinzmetal angina. Electrocardiographic criteria for ischemic injury, necrosis and scarring changes in myocardium. Changes of electrocardiograms in different stages of myocardial infarction: acute, acute, subacute, scarring stages. ECG at the signs of large-focal myocardial infarction. Infarct-like changes on ECG. Electrocardiographic pattern of myocardial infarction of various localizations: left ventricular anterior wall infarctions; back wall infarctions of the left ventricle; deep interventricular septal infarction; circular apex myocardial infarction; combined anterior myocardial infarctions. ECG features a small-focal infarct. Repeated myocardial infarcts. Electrocardiogram for postinfarction aneurysm of the left ventricle. Right ventricular infarction.

Topic 4. Electrocardiogram for heart rhythm disorders. Classification of heart rhythm disorders. The main mechanisms of arrhythmogenesis. Extracystolia: classification of atrial, left ventricular, right ventricular, interpolar bath, bi- trigeminias, early extrasystole), gradation of extrasystoles by Lown V. Electrocardiographic picture of atrial fluttering and fibrillation. Paroxysmal rhythm disorders: supraventricular and ventricular paroxysmal tachycardia. ECG manifestations of digital intoxication.

Topic 5. Electrocardiogram for cardiac conduction disorders. Main causes and mechanisms of heart conduction disorders. Classification of conduction disorders. Synoatrial blockade: sinus node arrest. Atrioventricular blockages: classification, Morgagnia Adams-Stokes syndrome, Frederick syndrome. Blockades of the branch of the His bundle: single- bundle blockades (blockades of the posterior branch of the left branch of His bundle, blockades of the anterior branch of the left branch of His bundle, blockades of the right branch of His bundle); double-beam blockades, blockades of the three branches of the His bundle (tri-bundle blockades).

Topic 6. Infarct-like electrocardiographic syndromes. The concept of infarct-like ECG syndromes and conditions. Classification of infarct-like syndromes. Coronarogenic Q infarct-like syndromes. Myogenic Q infarct-like syndromes. Septogenic Q infarct-like syndromes. Stress-like infarct-like syndromes. Positioned infarct-like syndromes. Diagnostic criteria and differential diagnosis.

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Topic 7. ECG features in children and teenagers. Features of electrocardiogram changes in childhood and adolescence. The concept of juvenile teeth. Features of conductivity in children and teenagers. The notion of partial pre-excitation syndromes, supraventricular scallop syndromes, early ventricular repolarization.

Topic 8. Electrocardiographic pattern in non-coronary myocardial lesions. Electrocardiogram in inflammatory heart lesions: major changes in the electrocardiogram in myocarditis, cardiomyopathy, pericarditis. Electrocardiogram changes in acute and chronic pulmonary heart. Electrocardiographic pattern in heart failure. Functional disorders of the electrocardiogram. Syndrome of early ventricular repolarization. ECG changes in congenital pathologies (Brugada syndrome, CLC, WPW syndromes). Main ECG changes in electrolyte balance disorder: hypo- and hypercalcemia, hypo- and hypercalcemia. Centrogenic causes of ECG changes. ECG pattern in cerebrocardial syndrome.

6. TOPICS OF PRACTICAL CLASSES AND SEMINARS (FOR DISCUSSING AND SELF-PREPARING OF STUDENTS)

Section 1. Functional research methods in a clinic of internal medicine: clinical electrocardiography.

Topic 1. Method of detecting and analyzing a standard electrocardiogram.

practical class

Questions to the topic.


- what are the conclusions of a standard ECG for breast cancer?
- what does the term "ECG transition zone" mean?
- in which thoracic area is the R tooth maximum?
- which teeth are excreted on a standard ECG (their duration and amplitude are normal).
- what are the intervals and segments in a standard ECG?
- how many "standard leads" are available on an ECG?
- What is the number of "reinforced single pole leads" available on the ECG?
- what are the ECG marks that correspond to the median position of the electrical axis of the heart?
- which ECG markings correspond to the horizontal position of the EOS?
- what are the ECG signs that correspond to the left and right deviations of the heart's electrical axis?
- what ECG-signatures are observed in the vertical position of the EOS?
- what does the term "reduced tooth voltages" mean?

Topic 2. Electrocardiogram in hypertrophy of the heart.

practical class

Questions to the topic.

- which ECG signs correspond to LV and LA hypertrophy?
- Which ECG signs correspond to hypertrophy of PVs with systolic overload?
- which ECG-signs correspond to deviations in the electrical axis of the heart "left" and "right"?
- what ECG changes are observed in left and right atrial hypertrophy?
- which ECG signs correspond to RA and RV hypertrophy?
- what are the ECG signs of hypertension?
- what are the ECG signs of the pulmonary heart?
- What are the ECG signs of CHD?

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Topic 3. Electrocardiogram for ischemic heart disease. Ischaemia, lesion, necrosis.

practical class

Questions to the topic.

- what kind of ECG changes are observed in myocardial ischemia?
- which ECGs - signs correspond to subendocardial, subepicardial and intramural myocardial ischemia?
- what are the signs of myocardial ischemia?
- what types of ST segment depression do they detect?
- what is meant by the term "monophasic curve" %.
- what does concordant and discordant shift of ST segment mean?
- describe the ECG signs of ischemic damage to the anterior wall of the left ventricle?
- describe the ECG signs of ischemic damage to the posterior ventricular wall of the left ventricle?
- what is meant by "pathological tooth Q"?
- what are the signs of myocardial transmural infarction?
- what are the signs of a common anterior myocardial infarction?
- what are the ECG signs of a circulatory apical myocardial infarction?
- what are the ECG signs of a minor myocardial infarction?
- signs of atherosclerosis and scar changes?
- ECG - signs of recurrent myocardial infarction?
- what are the signs of a postinfarct aneurysm?
- What does the term "recurring" changes on an ECG mean?
- ECGs are signs of a right ventricular infarction.

Topic 4. Electrocardiogram for heart rhythm disorders.


practical class

Questions to the topic.

- what kind of ECGs are signs that match ventricular extrasystole?
- which ECGs are the signs that correspond to atrial extrasystole?
- characterize the gradation of ventricular extrasystoles by Lower B.?
- describe the ECG signs of bi- trigeminias?
- what does early ventricular extrasystole mean?
- what does "interpolated" and "polymorphic" ventricular extrasystole mean?
- What are the ECG signs for right and left ventricular extrasystole?
- what are the signs of atrial and supraventricular extrasystole?
- What's an ECG for atrial fibrillation and flutter?
- What do the terms tachysystolic form of atrial fibrillation and atrial flutter in the 2:1 ratio mean?
- what are the ECG signs for paroxysmal ventricular and atrial tachycardia?
- what does an ECG look like in respiratory arrhythmias?
- what kind of ECGs are signs of intoxication by cardiac glycosides?
- what kind of ECG changes are common in fibrillation and ventricular flutter?

Topic 5. Electrocardiogram for cardiac conduction disorders.

practical class

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Questions to the topic.

- What elements does the conductive heart system consist of?
- what kind of ECGs are the signs of a sinoatrial block?
- How many degrees of sinus node blockage do you know and what is the ECG - the picture with them?
- what do you mean by "sinus node weakness syndrome"?
- ECG - signs of 1st degree atrioventricular block?
- ECG - signs of 2nd degree atrioventricular block?
- ECG - signs of 3rd degree atrioventricular block?
- what are the distinguishing features of Mobitz type I atrioventricular block 2 from complete atrioventricular block?
- What is Morgagnia Adams-Stokes syndrome and when does it occur?
- ECG - a picture of Frederick's syndrome?
- What kind of ECGs are symptoms typical of complete blockage of the right leg of the His branch block?
- What is the difference between complete and incomplete blockages of the legs of the His branch block?
- What is the ECG picture of complete blockage of the LBBB?
- What is the ECG picture of complete blockage of the RBBB?

Topic 6. Infarct-like electrocardiographic syndromes.

practical class

Questions to the topic.

- what is the ECG picture of the lead Q-anormal?
- what are the signs of Q-anormal positional Q-anormal at horizontal, vertical electric axis of the heart?
- what are the ECG signs in myogenic Q-like syndromes: PL hypertrophy, PG hypertrophy, "stun" and myocardial hibernation?
- which ECG criteria are typical for stressful infarct-like syndromes?
- characteristics of infarct-like syndromes depending on the ECG of the following sections: II, III, aVF, aVL, V1-3.

Topic 7. ECG features in children and teenagers.


practical class

Questions to the topic.

- What are the features of changes in the electrical axis of the heart in childhood and adolescence?
- definition and mechanisms of formation of "juvenile T teeth"?
- peculiarities of conductivity in childhood and adolescence?
- What changes on the ECG are described as "pancreatic scallop syndrome"?
- what are the ECG manifestations of "partial premature excitation syndrome" in children and adolescents?
- what are the peculiarities of repolarization processes in children and teenagers (early ventricular repolarization syndrome)?

Topic 8. Electrocardiographic pattern in non-coronary myocardial lesions.

practical class

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Questions to the topic.

- What kind of ECGs are symptoms common to acute pericarditis?
- What kind of ECGs are symptoms typical of acute myocarditis?
- which ECGs are typical of acute rheumocarditis?
- which ECGs are typical for cardiomyopathies (dilatational, hypertrophic)?
- ECG - symptoms of chronic pulmonary heart and pulmonary artery thromboembolism?
- ECG - signs of hyperkalemia, hypo- and hypercalcemia?
- characteristic signs of early ventricular repolarization syndrome?
- ECGs are signs of hypo and hypermagnesia.

7. LABORATORY CLASSES


Not provided

8. SUBJECTS OF COURSE PAPERS, TESTS, ESSAYS

Course paper is not provided.

9. QUESTIONS FOR CREDIT ON DISCIPLINE "CLINICAL ELECTROCARDIOGRAM"


1. Method of removal of standard 12-channel ECG.
2. Basic elements of normal ECG.
3. Give characteristics to the main ECG waves.
4. 4. Give characteristics of the main ECG intervals and segments.
5. Describe the algorithm of ECG conclusion.
6. Give the concept of the electrical axis of the heart. Methods of definition and basic variants of EOS.
7. Characterize the basic research methods where ECG diagnosis is used.
8. Which ECG signs correspond to LV and LA hypertrophy?
9. What ECG-signatures correspond to hypertrophy of LA with systolic overload?
10. What ECG-signs correspond to the deviations of the electrical axis of the heart "left" and "right"?
11. What ECG changes are observed in left and right atrial hypertrophy?
12. What ECG signs correspond to PA and PV hypertrophy?
13. What are the ECG signs of hypertension?
14. What are the ECG signs of the pulmonary heart?
15. What are the ECG signs of CHD?
16. What are the ECG signs that match ventricular extrasystole?
17. What are the ECG signs that correspond to atrial extrasystole?
18. describe the gradation of ventricular extrasystoles by Lower B.?
19. describe the ECG signs of bi- trigeminias?
20. what does early ventricular extrasystole mean?
21. what does "interpolated" and "polymorphic" ventricular extrasystole mean?
22. What are the ECG signs for right and left ventricular extrasystole?
23. what are the signs of atrial and supraventricular extrasystole?
24. What's an ECG for atrial fibrillation and flutter?
25. What do "tachysystolic" terms mean for atrial fibrillation and atrial flutter in a 2:1 ratio?
26. What kind of ECG signs are typical for paroxysmal ventricular and atrial tachycardia?
27. what does an ECG look like in respiratory arrhythmias?
28. What's an ECG - signs of cardiac glycosid intoxication?

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29. what are the ECG changes typical of fibrillation and ventricular flutter?
30. what kind of ECGs are signs of sinoatrial block?
31. what do you mean by "sinus node weakness syndrome"?
32. EKG - signs of atrioventricular blockage?
33. What are the distinguishing features of degree 2 atrioventricular block type Mobitz 3 from complete atrioventricular block?
34. what is Morgagnia Adams-Stokes syndrome and when does it occur?
35. EKG picture of Frederick's syndrome?
36. EKG is a symptom of a complete blockage of the right bundle branch of His bundle?
37. EKG is a picture of a complete blockage of the left bundle branch of His bundle?
38. ECG- Picture of complete blockage of the right bundle branch of the His bundle?
39. ECG- Picture of a complete blockage of the left bundle branch of the His bundle?
40. ECG- Picture of blockage of the anterior branch of the left bundle branch of the His bundle?
41. ECG- Picture of blockage of the posterior branch of the left bundle branch of the His bundle?
42. ECG - signs of two-branch and three-branch of the His bundle?
43. ECG - lead Q-abnormal pattern?
44. ECG - signs of Q-anormal position at horizontal, vertical electric axis of heart?
45. ECG - signs of myogenic Q infarct-like syndromes: LV hypertrophy, PG hypertrophy, "stunned" and hibernating myocardium?
46. ECG features in children and teenagers.
47. Features of repolarization in childhood and adolescence.
48. ECG criteria for early ventricular repolarization syndrome.
49. ECG picture of congenital ECG phenomena: CLC, WPW, Brugada.
50. ECG - signs of acute pericarditis.
51. ECG - symptoms of acute myocarditis?
52. ECG - symptoms typical for cardiomyopathy (dilatational, hypertrophic)?
53. ECG - symptoms of chronic pulmonary heart and pulmonary artery thromboembolism?
54. ECG - signs of hyperkalemia, hypo- and hypercalcemia.
55. ECG - signs of hypo- and hypermagnesia.

10. SELF-STUDY WORK OF STUDENTS

№	Name of the section / subject	Types of SSW	Total number of hours	Current control
1.	Method of detecting and analyzing a standard electrocardiogram.	Case management of normal ECG	2	Solving clinical cases, tests
2.	Electrocardiographic pattern in hypertrophy of the heart sections	Case management of ECG with signs of hypertrophy of the heart sections	2	Solving clinical cases, tests
3.	Electrocardiogram for ischemic heart disease. Ischaemia, injury, necrosis.	Case management of ECG with signs of ischemic heart disease	2	Solving clinical cases, tests
4.	Electrocardiogram for heart rhythm disorders.	Case management of ECG with signs of heart rhythm disorders.	2	Solving clinical cases, tests
5.	Electrocardiogram for cardiac conduction disorders.	Case management of ECG with signs of cardiac	2	Solving clinical

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		conduction disorders.		cases, tests
6.	Infarct-like electrocardiographic syndromes	Case management of ECG with signs of myocardial infarction	2	Solving clinical cases, tests
7.	ECG features in children and teenagers.	Case management of ECG of children and teenagers.	2	Solving clinical cases, tests
8.	Electrocardiographic pattern in non-coronary myocardial lesions.	Case management of ECG with signs of non-coronary myocardial lesions.	2	Solving clinical cases, tests
9.	Credit training	Questions for credit	2	Solving clinical cases, tests

11. EDUCATIONAL-METHODICAL AND INFORMATION SUPPORT OF DISCIPLINE

A. List of recommended literature

a). Core reading:

1. Ивашкин В. Т. Internal diseases propedeutics / V. T. Ivashkin, A. V. Okhlobystin. - Moscow : GEOTAR-Media, 2020. - 176 p. - 176 с. - ISBN 978-5-9704-5555-5. - Текст : электронный // ЭБС "Консультант студента": [сайт]. - URL:

<https://www.studentlibrary.ru/book/ISBN9785970455555.html>

2 Internal Diseases: Textbook in 2 Vols. Vol. I / edited by A. I. Martynov, Z. D. Kobalava, S. V. Moiseev. - Moscow: GEOTAR-Media, 2022. - 688 с. - ISBN 978-5-9704-6766-4. - Текст:электронный // ЭБС "Консультант студента": [сайт]. - URL :

<https://www.studentlibrary.ru/book/ISBN9785970467664.html>

3. Internal Diseases. Vol. II. : Textbook in 2 Vols. / edited by A. I. Martynov, Z. D. Kobalava, S. V. Moiseev. - Moscow : GEOTAR-Media, 2022. - 616 с. - ISBN 978-5-9704-6767-1. - Текст : электронный // ЭБС "Консультант студента" : [сайт]. - URL :

<https://www.studentlibrary.ru/book/ISBN9785970467671.html>

b). Supplementary reading:

1. Smirnova A. Yu. Basis of functional and laboratory diagnostics : textbook of medicine for medicine faculty students / Smirnova A. Yu., V. V. Gnoevykh; Ulyanovsk State University, Institute of Medicine, Ecology and Physical culture. - Ulyanovsk : ULSU, 2018. - 163 p. : ill. - Текст на англ. яз. URL: <http://lib.ulsu.ru/MegaPro/Download/MObject/1237> . - Режим доступа: ЭБС УлГУ. - Текст : электронный.

c). Educational and methodical literature

1. Gimaev R.Kh. Methodological manual for the self-study work of students studied the discipline «Clinical electrocardiography» in the specialty 31.05.01 «General medicine»: toolkit / Gimaev R.Kh. ; Ulyanovsk State University. - Ulyanovsk : UISU, 2022. - 12 p. - Неопубликованный ресурс; На англ. яз. - URL: <http://lib.ulsu.ru/MegaPro/Download/MObject/13064>. - Режим доступа: ЭБС УлГУ. - Текст : электронный.

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c) Software:

1. Система «Антиплагиат.ВУЗ»
2. ОС Microsoft Windows
3. Microsoft Office 2016
4. Мой Офис Стандартный

d) Professed data base, directory and search systems:

1. Electronic library systems:

- 1.1. Цифровой образовательный ресурс IPRsmart: электронно-библиотечная система: сайт /ООО Компания «Ай Пи Ар Медиа». - Саратов, [2022].— URL: <http://www.iprbookshop.ru> . — Режим доступа: для зарегистрир. пользователей. - Текст электронный.
- 1.2. Образовательная платформа ЮРАЙТ: образовательный ресурс, электронная библиотека сайт / ООО Электронное издательство ЮРАЙТ. — Москва, [2023]. - URL: <https://urait.ru>. — Режим доступа: для зарегистрир. пользователей. - Текст: электронный.
- 1.3. База данных «Электронная библиотека технического ВУЗа (ЭБС «Консультант студента»):электронная библиотечная система: сайт/ ООО»Политехресурс». – Москва, [2023]. – URL:[https://www/studentlibrary.ru/cgi-bin/mb4x](https://www.studentlibrary.ru/cgi-bin/mb4x). – Режим доступа: для зарегистрированных пользователей. – Текст электронный.
- 1.4. Консультант врача. Электронная медицинская библиотека: база данных: сайт/ ООО Высшая школа организации и управления здравоохранением-Комплексный медицинский консалтинг. — Москва, [2023]. — URL: <https://www.rosniedlib.ru>. — Режим доступа: для зарегистрир. пользователей. — Текст: электронный.
- 1.5. Большая медицинская библиотека: электронно-библиотечная система: сайт/ ООО Букап. — Томск, [2022]. — URL: <https://www.books-up.ru/ru/library/>. — Режим доступа: для зарегистрир. пользователей. — Текст: электронный.
- 1.6. ЭБС Лань: электронно-библиотечная система: сайт / ООО ЭБС Лань. — Санкт-Петербург, [2023]. — URL: <https://e.lanbook.com>. — Режим доступа: для зарегистрир. пользователей. — Текст: электронный.
- 1.7. ЭБС Znanium.com: электронно-библиотечная система: сайт /ООО Знаниум. - Москва, [2023). - URL: <http://znanium.com>. — Режим доступа: для зарегистрир. пользователей. - Текст: электронный.
- 2. ConsultantPlus** [Электронный ресурс]: legal search system. /ООО «Консультант Плюс» - Электрон. дан. - Москва: КонсультантПлюс, [2023).
- 3. Базы данных периодических изданий:**
 - 3.1. eLIBRARY.RU: научная электронная библиотека: сайт / ООО Научная Электронная Библиотека. — Москва, [2023]. — URL: <http://elibrary.ru>. — Режим доступа: для авториз. пользователей. — Текст: электронный.
 - 3.2. Электронная библиотека «Издательского дома «Гребенников» (Grebinnikon): электронная библиотека / ООО ИД Гребенников. — Москва, [2023]. — URL: <https://id2.action-media.ru/Personal/Products>. — Режим доступа: для авториз.пользователей. — Текст электронный.
- 4. Федеральная государственная информационная система «Национальная электронная библиотека»:** электронная библиотека: сайт / ФГБУ РГБ. — Москва, [2023]. — URL: <https://нэб.рф>. — Режим доступа: для пользователей научной библиотеки. — Текст: электронный.
- 5. Федеральные информационно-образовательные ресурсы:**
 - 5.1. Российское образование: федеральный портал/ учредитель ФГАУ «ФИЦТО» — URL: <http://www.edu.ru> — Текст: электронный.

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6. **Электронная библиотечная система УлГУ:** модуль «Электронная библиотека» АБИС Мега-ПРО / ООО «Дата Экспресс». — URL: <http://lib.usu.ru/MegaPro/Web>. — Режим доступа: для пользователей научной библиотеки. — Текст: электронный.

AGREED:

Ишениер Ведущий / *Цуренко Юль* / *h. Prof* / *120.06.2023*
 Должность сотрудника УИИТ / ФИО / Подпись / Дата

12. MATERIAL AND TECHNICAL SUPPORT OF THE DISCIPLINE

Rooms for self-study work of students are equipped with a personal computer with the ability to connect to the Internet and provide access to the electronic information and educational environment of UISU.

Lecture auditorium, auditorium for patient examination rooms:

Gratuitous use, UOKGVV, Kuznetsova str., 26;

Gratuitous use, GUZ Central Committee of the Medical Unit, Likhacheva str., 12;

Free use, UOKB, III Internationala str., 7;

Free use, Central City Clinical Hospital, Orenburgskaya str., 27

Library UISU, Sviyaga river embankment, building 2


Classrooms are equipped with multimedia and other teaching aids that allow the use of simulation technologies, with standard sets of professional models and the results of laboratory and instrumental research in an amount that allows students to master the skills and abilities provided by professional activities. Premises provided for the provision of medical care to patients, incl. related to medical interventions, equipped with specialized equipment and medical devices (tonometer, stethoscope, phonendoscope, blood pressure monitor, thermometer, medical scales, growth meter, anti-shock kit, electrocardiograph, set and styling for emergency preventive and therapeutic measures, thyroid activity analyzer, a manual dynamometer) and consumables in an amount that allows students to master the skills and abilities provided for by professional activity, as well as other equipment necessary for the implementation of the residency program.

Poly-spectrum (12-channel miniature wireless electrocardiograph), outpatient ECG-monitoring complex IKAR IN-22, electric massager (2 pcs.), multimedia projector are present too.

Topics and practical manual skills students are mastered on the equipment of the simulation center of UISU.

13. SPECIAL CONDITIONS FOR STUDENTS WITH DISABILITIES


Training students with disabilities is carried out taking into account the peculiarities of psychophysical development, individual capabilities and health of such students. Education of students with disabilities can be organized in conjunction with other students, and separately. If necessary, students from among persons with disabilities (at the request of the student) may be

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offered one of the following options for the perception of information, taking into account their individual psychophysical characteristics:


- for persons with visual impairment: in printed form in large print; in the form of an electronic document; in the form of an audio file (translation of educational materials into audio format); in printed form in Braille; individual consultations with the involvement of a typhlosurd translator; individual tasks and consultations.
- for persons with hearing impairment: in printed form; in the form of an electronic document; video materials with subtitles; individual consultations with the assistance of a sign language interpreter; individual tasks and consultations.
- for persons with musculoskeletal disorders: in printed form; in the form of an electronic document; in the form of an audio file; individual tasks and consultations.

Developer _____ Associate Professor of the Faculty therapy department Pavlova J.M.
signature position full name

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Лист согласования 1
Дисциплины/практики Clinical electrocardiography

№	Содержание изменения или ссылка на прилагаемый текст	ФИО заведующего кафедрой, реализующего дисциплину/выпускающей кафедрой	Подпись	Дата
1	Приложение 1»Внесене изменений в п.п. а)Список рекомендуемой литературы п. 11 «Учебно-методическое и информационное обеспечение дисциплины/практики» с оформлением отдельного приложения	Рузов В.И.		16/04/24
2	Приложение 1»Внесене изменений в п.п. б)Профессиональные базы данных п. 11 «Учебно-методическое и информационное обеспечение дисциплины/практики» с оформлением отдельного приложения	Рузов В.И.		16/04/24

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Application 1

EDUCATIONAL-METHODICAL AND INFORMATION SUPPORT OF DISCIPLINE

A. List of recommended literature

a). Core reading:

1. Ивашкин В. Т. Internal diseases propedeutics / V. T. Ivashkin, A. V. Okhlobystin. - Moscow : GEOTAR-Media, 2020. - 176 p. - 176 с. - ISBN 978-5-9704-5555-5. - Текст : электронный // ЭБС "Консультант студента": [сайт]. - URL:

<https://www.studentlibrary.ru/book/ISBN9785970455555.html>

2 Internal Diseases: Textbook in 2 Vols. Vol. I / edited by A. I. Martynov, Z. D. Kobalava, S. V. Moiseev. - Moscow: GEOTAR-Media, 2022. - 688 с. - ISBN 978-5-9704-6766-4. - Текст:электронный // ЭБС "Консультант студента": [сайт]. - URL :

<https://www.studentlibrary.ru/book/ISBN9785970467664.html>

3. Internal Diseases. Vol. II. : Textbook in 2 Vols. / edited by A. I. Martynov, Z. D. Kobalava, S. V. Moiseev. - Moscow : GEOTAR-Media, 2022. - 616 с. - ISBN 978-5-9704-6767-1. - Текст : электронный // ЭБС "Консультант студента" : [сайт]. - URL :

<https://www.studentlibrary.ru/book/ISBN9785970467671.html>

b). Supplementary reading:

1. Smirnova A. Yu. Basis of functional and laboratory diagnostics : textbook of medicine for medicine faculty students / Smirnova A. Yu., V. V. Gnoevykh; Ulyanovsk State University, Insitute of Medicine, Ecology and Physical culture. - Ulyanovsk : ULSU, 2018. - 163 p. : ill. - Текст на англ. яз. URL: <http://lib.ulsu.ru/MegaPro/Download/MObject/1237> . - Режим доступа: ЭБС УлГУ. - Текст : электронный.

c). Educational and methodical literature

1. Gimaev R.Kh. Methodological manual for the self-study work of students studied the discipline «Clinical electrocardiography» in the specialty 31.05.01 «General medicine»: toolkit / Gimaev R.Kh. ; Ulyanovsk State University. - Ulyanovsk : UISU, 2022. - 12 p. - Неопубликованный ресурс; На англ. яз. - URL: <http://lib.ulsu.ru/MegaPro/Download/MObject/13064>. - Режим доступа: ЭБС УлГУ. - Текст : электронный.

AGREED:


Leading specialist of the scientific library of ULSU/ Stadolnikova D.R. /  / 10.04.2024

The position of the worker scientific library

Full name

signature

data

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Application 2

Профессиональные базы данных, информационно-справочные системы

1. Электронно-библиотечные системы:

1.1. Цифровой образовательный ресурс IPRsmart : электронно-библиотечная система : сайт / ООО Компания «Ай Пи Ар Медиа». - Саратов, [2024]. – URL: <http://www.iprbookshop.ru>. – Режим доступа: для зарегистрир. пользователей. - Текст : электронный.

1.2. Образовательная платформа ЮРАЙТ : образовательный ресурс, электронная библиотека : сайт / ООО Электронное издательство «ЮРАЙТ». – Москва, [2024]. - URL: <https://urait.ru>. – Режим доступа: для зарегистрир. пользователей. - Текст : электронный.

1.3. База данных «Электронная библиотека технического ВУЗа (ЭБС «Консультант студента») : электронно-библиотечная система : сайт / ООО «Политехресурс». – Москва, [2024]. – URL: <https://www.studentlibrary.ru/cgi-bin/mb4x>. – Режим доступа: для зарегистрир. пользователей. – Текст : электронный.

1.4. Консультант врача. Электронная медицинская библиотека : база данных : сайт / ООО «Высшая школа организации и управления здравоохранением-Комплексный медицинский консалтинг». – Москва, [2024]. – URL: <https://www.rosmedlib.ru>. – Режим доступа: для зарегистрир. пользователей. – Текст : электронный.

1.5. Большая медицинская библиотека : электронно-библиотечная система : сайт / ООО «Букап». – Томск, [2024]. – URL: <https://www.books-up.ru/ru/library/>. – Режим доступа: для зарегистрир. пользователей. – Текст : электронный.

1.6. ЭБС Лань : электронно-библиотечная система : сайт / ООО ЭБС «Лань». – Санкт-Петербург, [2024]. – URL: <https://e.lanbook.com>. – Режим доступа: для зарегистрир. пользователей. – Текст : электронный.

1.7. ЭБС Znanium.com : электронно-библиотечная система : сайт / ООО «Знаниум». - Москва, [2024]. - URL: <http://znanium.com>. – Режим доступа : для зарегистрир. пользователей. - Текст : электронный.

2. КонсультантПлюс [Электронный ресурс]: справочная правовая система. / ООО «Консультант Плюс» - Электрон. дан. - Москва : КонсультантПлюс, [2024].

3. eLIBRARY.RU: научная электронная библиотека : сайт / ООО «Научная Электронная Библиотека». – Москва, [2024]. – URL: <http://elibrary.ru>. – Режим доступа : для авториз. пользователей. – Текст : электронный

4. Федеральная государственная информационная система «Национальная электронная библиотека» : электронная библиотека : сайт / ФГБУ РГБ. – Москва, [2024]. – URL: <https://нэб.рф>. – Режим доступа : для пользователей научной библиотеки. – Текст : электронный.

5. Российское образование : федеральный портал / учредитель ФГАУ «ФИЦТО». – URL: <http://www.edu.ru>. – Текст : электронный.

6. Электронная библиотечная система УлГУ : модуль «Электронная библиотека» АБИС Mega-ПРО / ООО «Дата Экспресс». – URL: <http://lib.ulsu.ru/MegaPro/Web>. – Режим доступа : для пользователей научной библиотеки. – Текст : электронный.

Инженер ведущий



Щуренко Ю.В.

2024