INTERNATIONAL HIGHER SCHOOL OF MEDICINE

Internal Medicine Department

SYLLABUS
Cardiology 1

2025-2026 academic year
for students of medical faculty
3 course 6 semester,1-9 groups
1 credit (30 h, including auditorial 18 h, independent work 12 h)

Lecturer: **Kudaibergenova Nazira**
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Venue: Zoom

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Venue: Vedanta, hospital No 6, Oncology center

The Syllabus is considered
at the meeting of the department of internal medicine
Protocol № 1 dated 03.09.2025
Head of the department prof. Kudaibergenova N.T.

Course Objective: consists in mastering the knowledge of diseases of internal organs, as well as the principles of diagnosis, skills and abilities for the treatment and prevention of internal diseases.
After study of the discipline the student must:
Knowledge:
- issues of medical ethics and deontology;
- epidemiology, the influence of etiological factors and risk factors on the course and outcome of diseases of internal organs;
- modern theories of the pathogenesis of the main internal diseases in adults;
- modern classification, etiology, pathogenesis, clinical and laboratory investigation of the main diseases of internal organs;
- modern diagnostic methods, standards for the treatment of diseases of internal organs;
- therapeutic nutrition for internal diseases;
- examination of a patient with pathology of internal organs;
- principles of preventive measures - identification of risk factors, primary and secondary prevention of non-communicable diseases;
- rules for issuing certificates and certificates for work of patients with internal diseases.
Skill:
- communicate with patients in compliance with deontological norms and principles;
- get information about the disease, establish possible causes, taking into account the influence of social, hereditary, age and climatic factors on the body;
- assess the severity of the patient's condition and, if necessary, provide emergency care;
- make the right decision on the tactics of patient management;
- conduct functional, laboratory and instrumental studies, evaluate them;
- recognize the features of the clinical course, identify complications and concomitant diseases;
- conduct differential diagnosis, formulate and substantiate a clinical diagnosis;
- choose the tactics of management due to individual and pathogenetic characteristics;
- make a rehabilitation and prevention plan;
- monitor the patient in the intensive care unit;
- write a medical documentation in accordance with the law;
- analyze the scientific literature and prepare an essay on modern problems of diseases of internal organs.
Attitude:
- fundamentals of medical deontology and medical ethics;
- evaluation of the results of laboratory and special research methods (clinical, functional, morphological, biochemical, immunological, serological parameters of blood, urine, sputum, feces, cerebrospinal fluid, coagulogram indicators);
- interpretation of the results of functional examination of the respiratory system, cardiovascular system, gastrointestinal tract, liver, kidneys, central nervous system, blood system etc.;
- the method of management of internal diseases, pathological conditions, in accordance with the standard of medical care for diseases of internal organs;
- registration of medical documentation in the hospital and on an outpatient basis.
Pre-requisites.
Anatomy (macro-microanatomy)
Normal physiology
Pathological anatomy
Pathological physiology
Clinical Pharmacology
Propedtherapy
Post-requisites.
Surgical diseases
Occupational diseases
Oncology
Public health
Dermatovenereology
Outpatient conditions
Medical supervision
Family Medicine
Anesthesiology, Intensive Care, Emergency Conditions

THEMATIC PLAN OF LECTURES

№	Theme of lecture	Hours	Date
1	Clinical Electrocardiography (ECG). Normal ECG.	2	09.2025-05.2026
2	ECG for Rhythm and Conduction Disorders.	2	09.2025-05.2026
3	Essential and Symptomatic Hypertension. Definition, Etiology, Pathogenesis, Classification, Clinical Presentation, Disease Progression, Complications, Diagnosis, Treatment, and Prevention.	2	09.2025-05.2026
		6	

THEMATIC PLAN OF PRACTICAL CLASSES

№	Theme of practical class	Hours	Date
1	Normal Electrocardiogram Analysis. ECG Interpretation. Calculating ECG Parameters. Electrocardiogram Analysis for Blocks.	2	09.2025-05.2026
2	Electrocardiogram Analysis for Arrhythmias: Extrasystolic Arrhythmia, Atrial Fibrillation, Atrial Flutter, Paroxysmal Tachycardia, Ventricular Fibrillation.	2	09.2025-05.2026
3	Differential Diagnosis of Arterial Hypertension. Clinical Analysis of Patients with Symptomatic and Essential Arterial Hypertension.	2	09.2025-05.2026
4	Clinical Analysis of Patients with Hypertensive Crises. Principles of Emergency Care.	2	09.2025-05.2026
5	Module 1.	2	09.2025-05.2026
	Total	**10**	

THEMATIC PLAN OF INDEPENDENT WORK OF STUDENTS

Unit №	Theme of independent work	Hours	Date
1	Normal ECG. ECG criteria of the heart hypertrophy.	3	09.2025-05.2026
2	Symptomatic arterial hypertension. Coarctation of aorta	3	09.2025-05.2026
3	Symptomatic arterial hypertension. Cohn's disease. Pheochromocytoma. Cushing's syndrome	3	09.2025-05.2026
4	Complications. Classification. Risk factor. Tactics of treatment of hypertensive crises. Prevention	3	09.2025-05.2026
	Total	**20**	

Recommended reading for the discipline:

Basic:

№	Authors	Title	The year of publishing
1.	Harrison. Braunwald E.	Internal Medicine	2001
2.	Harrison. Braunwald E.	Principles of Internal Medicine	2001
3.	Harrison. Braunwald E.	Principles of Internal Medicine	2001
4.	Harrison. Braunwald E.	Principles of Internal Medicine	2005
5.	Harrison.Wiener Ch.M.	Principles of Internal Medicine. Self-Assessment and Board Review	2005
6.	Harrison. Fauci A.S.	Principles of Internal Medicine	2008
7.	Harrison's Kasper D.L.	Principal of Internal Medicine.	2015
8.	S Melmed, R Koenig, C Rosen., et al.	Textbook of Endocrinology	2017
9.	Harrison Liu KD, Chertow GM.	Principles of Internal Medicine	2022

Additional:

№	Authors	Title	The year of publishing
1.	Davidson. Haslett C.	Priciples and Practice of Medicine	2002
2.	Davidson. Boon N.	Priciples and Practice of Medicine	2006
3.	Davidson. Ralston S.	Priciples and Practice of Medicine	2018

Grading policy and procedures for all types of work

For the period of studying the discipline, the student gains points for the relevant parameters (per unit):
current score - 40 points
independent work - 20 points
control score (final assessment of knowledge per unit) - 40 points
Maximum score - 100 (40+20+40)

Grading system for student's achievements

Criteria for assigning grades for the course				
Maximum score	Intervals			
	« unsatisfactory»	« satisfactory»	«good »	«excellent»
40	0-23	24-30	31-35	36-40
Interval criteria	Does not complete homework or prepare for class, and is inactive in class. Unable to apply acquired knowledge to solving clinical problems.	Completes assignments, but with serious errors, is active in class, but does not differentiate the diagnosis of various diseases.	Completes homework, and is almost always prepared for class. Able to solve clinical problems, but with minor errors.	Completes homework, and correctly analyzes clinical problems involving various diseases
IWS-20	0-11	12-14	15-17	18-20
Interval criteria	assignments for independent work are not completed, or they contain numerous errors; the student has not met the requirements for composing the work	The tasks for independent work are completed, but with errors; 2 points are missing from the program.	assignments for independent work are completed, mostly without errors or with minor errors, one point is missing from the program	assignments for independent work are completed without errors, the material is fully prepared according to the sample
40	0-23	24-30	31-35	36-40
Interval criteria	The answer represents disjointed knowledge with significant errors regarding the question; - fragmentary and illogical presentation; the student does not understand the connection between the question being discussed and other subjects of the course; speech is illiterate; - significant errors in demonstrating exercises; incorrect choice of tactics for the given disease; - incorrect answers to additional questions.	The answer is incomplete, contains errors in detail, the ability to convey the meaning of generalized knowledge is not demonstrated, and the student's speech requires correction and adjustments; - the logic and consistency of presentation are impaired; the student is unable to independently identify essential and non-essential features and cause-and-effect relationships; - errors in the prescription and correct choice of treatment method; - numerous errors in patient management tactics; - the student is unable to answer most of the additional questions.	A complete, detailed answer to the question was given, demonstrating the ability to distinguish essential and non-essential features and cause-and-effect relationships; - the narrative is not logical enough, with isolated errors in details, which the student corrected with the teacher's assistance; - insufficient confidence and speed in demonstrating the exercises; - isolated errors in technique; - answers to additional questions are correct, but not sufficiently complete and clear.	A complete, detailed answer to the question posed is provided; - the answer has a clear structure and logical sequence, reflecting the essence of the concepts, theories, and phenomena being explored; - the exercises are selected and performed correctly; - answers to additional questions are clear and concise;

Conduct Policy: (lateness, absence, behavior in the auditorium, late submission of work).

- Punctuality and completion of tasks.
- Mandatory attendance of classes.
- Attending class in a clean medical uniform.
- Eliminating conversations on a cell phone in the classroom.
- Active participation in the learning process.
- Doing homework on time.
- Academic detention at the time specified by the teacher.

For violations of the Conduct Policy, the total points for discipline might be reduced to 1-10 points.

Academic Ethics Policy.

- Be tolerant, respect the opinions of others.

- Formulate objections in the correct form.
- Constructively support feedback in all classes.
- Plagiarism and other forms of dishonest work are unacceptable. Plagiarism includes the following: the absence of references when using printed and electronic materials, quotes, thoughts and works of other authors or students.
- Prompting and cheating during tests, exams, classes is unacceptable as well as passing an exam for another student, unauthorized copying of materials.

For violations of the Academic Ethics Policy, the total points for the discipline may be reduced to 1-10 points.

Guidelines for the lessons of the discipline

Key questions covered in lesson 1. Normal Electrocardiogram Analysis. ECG Interpretation. Calculating ECG Parameters. Electrocardiogram Analysis for Blocks.

Clinical ECG. Cardiac arrhythmias: Supraventricular extrasystoles. Paroxysmal supraventricular tachycardia. Syndrome CPG. Etiology. Pathogenesis of tachyarrhythmias. Re-entry mechanism. Clinical implications. Criteria ECG. Tactics of treatment. Non-drug and drug treatments. Ventricular extrasystoles. Criteria ECG. Etiology. Classification on the Lawn. Pharmacotherapy. Ventricular tachycardia (GIT).The types of zht. Tactics of treatment. Pharmacotherapy. Ablation. Ventricular fibrillation. Algorithm of resuscitation. Electrical defibrillation. Modern treatment method. Prevention of sudden cardiac arrest.

Recommended reading for the lesson/unit:

1. Harrison's Principles of Internal Medicine. 20th ed. New York, NY: McGraw-Hill; 2018: 229-233, 1911-2007.
2. Davidson's Principles of Internal Medicine. 23th ed. Elsevier; 2018: 545-628.
3. de Luna AB. Clinical Elelctrocardiography: A Textbook, Second Updated Edition. Futura Publishing Company, Inc. 1998. Chapter 11: Hyperactive ventricular arrhythmias. pages 228-234.
4. Wagner GS. Marriott's Practical Electrocardiography, Ninth Edition. Williams & Wilkins. 1994. page 248.
5. Smith GD, Fry MM, Taylor D, et al. Effectiveness of the Valsalva Manoeuvre for reversion of supraventricular tachycardia. Cochrane Database Syst Rev 2015;(2):CD009502. [*PubMed*] [*Google Scholar*]
6. Hogenhuis W, Stevens SK, Wang P, et al. Cost-effectiveness of radiofrequency ablation compared with other strategies in Wolff–Parkinson–White syndrome. Circulation 1993;88:II437–46. [*PubMed*] *[Google Scholar]*
7. Bigger JT Jr, Weld FM. Analysis of prognostic significance of ventricular arrhythmias after myocardial infarction. Shortcomings of the Lown grading system. Br Heart J. 1981; 45: 717-724.
8. Lown BL, Graboys TB. Management of patients with malignant ventricular arrhythmias. Am J Cardiology. 1977; 39: 910-918.
9. Marchlinski F. The tachyarrhythmias. In: Kasper DL, Braunwald E, Fauci AS, et al,eds. Harrison's Principles of Internal Medicine. 17th ed. New York, NY: McGraw-Hill;2008:1425-1443.

Key questions covered in lesson 2. Electrocardiogram Analysis for Arrhythmias: Extrasystolic Arrhythmia, Atrial Fibrillation, Atrial Flutter, Paroxysmal Tachycardia, Ventricular Fibrillation.

Atrioventricular blockades. Etiology. ECG. Classification. Clinical implications. Syncope. Tactics of treatment. Drug therapy. Artificial rhythm driver (X). Principle of operation. Indications for temporary or permanent ICS.

Recommended reading for the lesson/unit:

1. Harrison's Principles of Internal Medicine. 20th ed. New York, NY: McGraw-Hill; 2018: 229-233, 1911-2007.
2. Davidson's Principles of Internal Medicine. 23th ed. Elsevier; 2018: 545-628.
3. de Luna AB. Clinical Elelctrocardiography: A Textbook, Second Updated Edition. Futura Publishing Company, Inc. 1998. Chapter 11: Hyperactive ventricular arrhythmias. pages 228-234.
4. Gregoratos G, Abrams J, Epstein AE, et al. ACC/AHA/NASPE 2002 guideline update for implantation of cardiac pacemakers and antiarrhythmia devices—summary article:a report of the American College of Cardiology/American Heart Association Task Force on practice guidelines (ACC/AHA/NASPE Committee to Update the 1998 Pacemaker Guidelines). J Am Coll Cardiol. 2002;40:1703-1709.

Key questions covered in lesson 3. Differential Diagnosis of Arterial Hypertension. Clinical Analysis of Patients with Symptomatic and Essential Arterial Hypertension.

Classification of arterial hypertension (AH). Primary and symptomatic hypertension. The complications of hypertension. Risk factors for primary hypertension. Criteria for the diagnosis of essential hypertension. Target organs. Clinical and pathogenetic variants of primary hypertension. Stress induced hypertension. Salt-dependent hypertension. Principle of treatment. Left ventricular hypertrophy criteria. Risk factors for primary hypertension. The state of target organs. Lifestyle changes, diet. Principles of pharmacotherapy of hypertension. Selection of antihypertensive drugs. Preparations of the first and second row. Prevention of primary hypertension.

Recommended reading for the lesson/unit:

1. Harrison's Principles of Internal Medicine. 20th ed. New York, NY: McGraw-Hill; 2018: 229-233, 1911-2007.
2. Davidson's Principles of Internal Medicine. 23th ed. Elsevier; 2018: 545-628.
3. Kotchen TA. Hypertensive vascular disease. In: Kasper DL, Braunwald E, Fauci AS, et al, eds.Harrison's Principles of Internal Medicine. 17th ed. New York, NY: McGraw-Hill; 2008:1549-1562.
4. Chobanian AV, Aram GL, Bakris GL, Black HR. The seventh report of the JointNational Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. The JNC 7 report. JAMA. 2003;289:2560-2572.
5. National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. The JNC 7 report. JAMA. 2003;289:2560-2572.
6. Eugene C. Toy, MD John T. Patlan, Jr.,MD. Case Files Internal Medicine 2009

Key questions covered in lesson 4. Clinical Analysis of Patients with Hypertensive Crises. Principles of Emergency Care.

Screening for secondary hypertension. Etiologic classification of secondary hypertension. Classification. Diagnostics. Treatment.

Recommended reading for the lesson/unit:

1. Harrison's Principles of Internal Medicine. 20th ed. New York, NY: McGraw-Hill; 2018: 229-233, 1911-2007.
2. Davidson's Principles of Internal Medicine. 23th ed. Elsevier; 2018: 545-628.
3. Kotchen TA. Hypertensive vascular disease. In: Kasper DL, Braunwald E, Fauci AS, et al, eds.Harrison's Principles of Internal Medicine. 17th ed. New York, NY: McGraw-Hill; 2008:1549-1562.
4. Chobanian AV, Aram GL, Bakris GL, Black HR. The seventh report of the JointNational Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. The JNC 7 report. JAMA. 2003;289:2560-2572.
5. National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. The JNC 7 report. JAMA. 2003;289:2560-2572.
6. Eugene C. Toy, MD John T. Patlan, Jr.,MD. Case Files Internal Medicine 2009

Methodological instructions for the implementation of independent work on the discipline

1. Abstract: for each practical lesson, the student prepares materials on the topic, using the proposed literature. The amount of information on one topic is 3-5 pages (written by hand).
2. Control questions: the student must know the answers to the control questions about topic (orally, it is possible to make notes in a notebook)
3. Presentation: prepare 2-3 presentations of the student's choice on topics of independent work (limit 25-30 slides per presentation, works downloaded from the Internet are not accepted)
4. Table/poster: a group of 3-4 students prepares a poster on a specified topic according to the principle - differential diagnosis of diseases