INTERNATIONAL HIGHER SCHOOL OF MEDICINE

Department of Introduction to internal medicine & family medicine

SYLLABUS
Cardiovascular system
2025-2026 academic year
for students of medical faculty
2 course 4 semester,
3 credits (90 h, including auditoria 68 h, independent work – 22 h)

Lecture   https://timetable.ism.edu.kg/TimeTable/IHSM_TimeTable?id=7

Introduction into Internal medicine	according to timetable
Introduction into Pediatrics	
Clinical anatomy	
Pathophysiology	
Radiology	
Venue:	Zoom
Practical classes:	**https://timetable.ism.edu.kg/TimeTable/IHSM_TimeTable?id=7**
Introduction into Internal medicine	according to timetable
Introduction into Pediatrics	
Clinical anatomy	
Pathophysiology	
Radiology	
Venue:	according to timetable

The Syllabus is considered
at the meeting of the department of Introduction to internal medicine & family medicine
Protocol №2 dated 10.09.2025
Head of the department /Kamchybekova A.A.

Course Objective:
Mastering the knowledge, skills and abilities of examination and diagnosis of most common cardiovascular diseases (CVD)

After study of the discipline the student must have -
Knowledge:
– The norm and causes of pathological condition in the cardiovascular system, the results of examination of the patient with most common CVD
– Pathophysiological mechanisms of symptoms and syndromes' development in the most common CVD and pathogenically justified diagnostic methods in various age groups of patients
– Patterns of functioning of particular organs and systems, mechanisms of development of the main symptoms and syndromes, as well as methods for their identification;
– The essence of the methods of clinical, laboratory and functional examination of adults and children with the most
– Etiology, pathogenesis, clinical and laboratory criteria and basic principles of treatment of the most common cardiovascular diseases that are not accompanied by a threat to the patient's life.

Skill:
– Collect the necessary information, carefully and competently describe all sections of the "student's" medical history with CVD, recording all the necessary data reflecting the course of clinical thinking in the process of making a diagnosis and choosing treatment tactics;
– Analyze and synthesize information about identified pathological symptoms and syndromes of damage to the cardiovascular system and prescribe an adequate examination for the purpose of reliable diagnosis of CVD;
– Identify the main symptoms using physical examination methods and group them into syndromes based on knowledge of the anatomical and physiological characteristics and patterns of functioning of the CVD;
– Analyze the results of clinical, laboratory and functional examination of the body of an adult and children, according to their specifics diagnose the main CVD;
– Examine the patient to diagnose common acute and exacerbations of chronic cardiovascular diseases that are not accompanied by a threat to the patient's life
– Demonstrate cardiovascular examination
– Demonstrate Inspect and palpate of heart area and vessels
– Identify relative and absolute dullness of heart
– Auscultate heart and arteries
– Differentiate in between normal and pathological heart sounds
– Interpret ECG

Attitude:
– Demonstrate practical skills in collecting complaints of a patient with cardiovascular disease, his medical history, conducting a physical examination according to the standard scheme at the patient's bedside;
– Demonstrate skills in physical examination of patients with cardiovascular diseases, aimed to identify the main pathological symptoms and syndromes for the purpose of reliable diagnosis of CVD;
– Demonstrate skills in conducting basic clinical, laboratory and functional examinations of adults and children with CVD;
– Demonstrate understanding of hemodynamic changes of congenital heart diseases

• **Pre-requisites.**
– Anatomy: of the heart, vessels
– Physiology: blood circulation circles, physiological properties of the heart, conductive system of heart, heart cycle and its phases, hemodynamic' indicators
– Basic Pharmacology

• **Post-requisites.**
– Every clinical disciplines
– Clinical training "Feldsher's assistant"; "Doctor's Assistant"

Thematic plan of lectures

№	Theme of lecture	Hours	Discipline / Date /
1.	L1. Part1: Clinical anatomy of the heart and large blood vessels	1	Clinical anatomy
2.	L1. Part 2: Clinical anatomy of arterial and venous vessels of the upper and lower limbs.	1	Clinical anatomy

3.	L2: Etiology and pathogenesis of coronary heart disease. Etiology and pathogenesis of primary and secondary hypertension.	2	Pathphys
4.	L3. Part1: Pathophysiological basis of cardiac conduction and rhythm disorders. Typical hemodynamic disorders in cardiac valve diseases.	1	Pathphys
5.	L3. Part2: Etiology and pathogenesis of heart failure. Typical changes of hemodynamics in right and left heart failure.	1	Pathphys
6.	L4. Part1: Anatomical and physiological features of the cardiovascular system in children.	1	IntroPed
7.	L4. Part2: Semiotics of congenital and acquired heart diseases in children	1	IntroPed
8.	L5 Part1: Modern diagnostic imaging of the CVS. Normal radiological anatomy of the CVS	1	Radiology
9.	L5. Part2: Diagnostic imaging of pathological conditions of the CVS	1	Radiology
10.	L6. Inspection of patients with cardiovascular diseases.	2	IntroIM
11.	L7. Conducting system of heart. ECG analysis	2	IntroIM
12.	L8. The syndrome of inflammatory changes of heart layers	1	IntroIM
13.	L9. Arterial and pulmonary hypertension	1	IntroIM
14.	L10. Part1. Acute coronary syndrome	1	IntroIM
15.	L10. Part2.The syndrome of acute and chronic cardiac failure	1	IntroIM
		18	

Thematic plan of practical classes

№	Theme of practical class	Hours	Discipline / Date /
	Unit 1 Topanatomy and Pathophysiology of CVS		
1.	Pr 1: Clinical anatomy of the heart and large blood vessels	2	Clinical anatomy
2.	Pr 2: Clinical anatomy of arterial and venous vessels of the upper and lower limbs.	2	Clinical anatomy
3.	Pr3: Pathophysiology of coronary heart disease. Etiology and pathogenesis. Primary and secondary hypertension, etiology and pathogenesis.	2	Pathphys
4.	Pr4: Pathophysiological basis of cardiac conduction and rhithm disorders. Typical hemodynamic disorders in cardiac valve diseases.	2	Pathphys
5.	Pr5: Etiology and pathogenesis of heart failure. Typical changes of hemodynamics in right and left heart failure.	2	Pathphys
6.	Pr6. **Unit 1**	**2**	**IntroIM**
	Unit 2 Anatomical and physiological features and diagnosis of CVS		
7.	Pr7. Semiotics of congenital and acquired heart defects in children.	4	IntroPed
8.	Pr8. Semiotics of damage to the membranes of the heart in children. Acute and chronic cardiovascular insufficiency syndrome in children	4	IntroPed
9.	Pr9. Modern diagnostic imaging of the CVS. Normal radiological anatomy of the CVS	2	Radiology
10.	Pr10: Diagnostic imaging of pathological conditions of the CVS	2	Radiology
11.	Pr11. **Unit 2**	**2**	**IntroIM**
	Unit 3 Main syndromes of cardiovascular system		
12.	Pr12. Inspection of patients with cardiovascular diseases.	4	IntroIM
13.	Pr13. Conducting system of heart. ECG analysis	6	IntroIM
14.	Pr14. The syndrome of inflammatory changes of heart layers	2	IntroIM
15.	Pr15. Arterial and pulmonary hypertension	4	IntroIM
16.	Pr16. Acute coronary syndrome	4	IntroIM

17.	Pr17. The syndrome of acute and chronic cardiac failure	4	IntroIM
18.	Pr18. **Unit 3**	**2**	**IntroIM**
		50	

Thematic plan of independent work of students

Unit №	Theme of independent work of CVS	Hours	Date
Unit 1. Topanatomy and Pathophysiology of CVS	Clinical anatomy - Reading	2	
	Pathophysiology - Reading	3	
	Introduction into Internal medicine Independent work – Diagram and its explanation "Mechanisms of (cardiogenic) shock development"	7	
Unit 2. Anatomical and physiological features and diagnosis of CVS	Introduction into Pediatrics - Reading	2	
	Radiology - Reading	2	
	Introduction into Internal medicine Independent work – Criteria table "Differentiation of stenosis and insufficiency of heart valves"	2	
Unit 3. Main syndromes of cardiovascular system	Introduction into Internal medicine - Reading	2	
	Introduction into Internal medicine Independent work – Solve the clinical cases – ECG interpretation To listen to pathological sounds and murmurs of heart in ISM Clinical Simulation center	2	
	Total	22	

Recommended reading for the discipline:
  1. **Basic:**
  1) Clinical anatomy –
     [13] Chaurasia B.D. Human anatomy 4-ed, vol-3
     [15] Snell R.S. Clinical anatomy by Regions 8ed 2008
  2) Pathophysiology –
     [11] Mohan N. Textbook of pathology. - 8th ed 2019
  3) Pediatrics IntroPed –
     [6] Alekseev V., Starodubetz U., Isakova F. et al., «Introduction to Pediatrics. Compendium for foreign student» 2012 Bishkek, p.166
     [7] Ghai OP Essential Pediatrics, 8th Ed. 2013
     [8] Ghai OP Essential Pediatrics, 9th Ed. 2019
     [9] Nelson Textbook of pediatrics 20th ed 2016
  4) Radiology –
     [14] Bhargava S.K. Textbook of radiology. -3rd ed 2007
  5) Introduction into Internal Medicine -
     [1] Ralston S.H. "Davidson's Principles and Practice of Medicine" -23th ed
     [2] Bickley L.S. Szilagyi P.G "Bates` guide to physical examination and history taking". -8th ed
     [3] Braunwald, Kasper, Hauser "Harrison's principles of internal medicine". V.1.-17th ed.
  2. **Additional:**
  1) Pathophysiology -
     [1] Essentials of pathophysiology. Calor Mattson Porth 2019
     https://booksclub.online/book/rD63DwAAQBAJ/porth-s-essentials-of-pathophysiology/tommie-norris/lippincott-williams-wilkins/3379/2019-10-17//
  2) Clinical anatomy –
     [2] Topographic anatomy and operative surgery. A.V.Nikolaev Textbook 2019
     https://www.rosmedlib.ru/doc/ISBN9785970445495-0003.html

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 - 20 points

- independent work - 20 points
- unit / module - 20 points
- the overall score - 60 (20+20+20)

For violations of t**he conduct policy**, the overall discipline score will be reduced by a maximum of 10 points.
For violations of **the academic ethics policy**, the overall score in the discipline is reduced by a maximum of 10 points.

Grading system for student's achievements

Grading criteria per discipline				
Maximum score	Intervals			
	«unsatisfactory»	«satisfactory»	«good»	«excellent»
Current control - 20	**0-11**	**12-14**	**15-17**	**18-20**
Interval description	The student has separate ideas about the material studied; cannot fully and correctly answer the questions posed; when answering, he makes gross mistakes; situational tasks were not completed or were completed with errors affecting the quality of the work performed.	The student knows only the basic material; does not answer the questions asked clearly and completely, which requires additional and clarifying questions from the teacher; Performs situational tasks with errors that do not affect the quality of the work performed.	The student has a firm knowledge of the educational material; answers without leading questions and does not make serious mistakes when answering; knows how to apply acquired knowledge in practice; Performs situational tasks correctly, without errors.	The student has deeply studied the educational material; consistently and comprehensively answers questions asked; freely applies acquired knowledge in practice; Performs situational tasks correctly, without errors, within the time established by the standards.
Independent work - 20	**0-11**	**12-14**	**15-17**	**18-20**
Assessment criteria	• compliance with the standard answers; • correct use of the action algorithm (methodology, technology, etc.); • logic of reasoning; • originality of the approach to the solution.			
<mark>Interval description</mark>	Issued to the student if he does not possess the listed skills OR if the student demonstrates knowledge and understanding of most of the assignment. The student partially knows the terminology used in the task.	Given to the student shows poor understanding of the relationship between the basic concepts used in the work; sometimes incorrectly uses professional terminology; was able to complete part of the task correctly or made certain significant errors; the diagram or table is only partially correct; the work	Given to the student showed a fairly good knowledge of the educational material on the topic of work; uses professional terminology generally correctly; made minor shortcomings in fulfilling all points of the assignment; primarily maintains accuracy and brevity when indicating data in	Given to the student demonstrates deep knowledge of educational material on the topic of work; shows a complete understanding of the relationship between the basic concepts used in the work; uses professional terminology correctly; was able to complete all tasks correctly; correctly selected the source material for filling out the table or

		was not done enough independently.	a table or chart; there is a logical sequence in the diagram or there are minor flaws in its definition; The work was mostly done independently.	drawing up the diagram; maintains accuracy and brevity when indicating data in a table or diagram; the circuit has a logical sequence; the work was done independently.
Control work (module) - 20	**0-11**	**12-14**	**15-17**	**18-20**
Interval description	Number of correct answers to MCQs –59% or less	Number of correct answers to MCQs – 60-75 %	Number of correct answers to MCQs – 76-89%	Number of correct answers to MCQs – 90% and above

Grading system for student's achievements of Practical Skills				
Maximum score	Intervals			
	«unsatisfactory»	«satisfactory»	«good»	«excellent»
Mastering of Practical Skills - 20	0-11	12-14	15-17	18-20
Interval description	The algorithm for performing the practical skill is completed – 59% and less	The algorithm for performing the practical skill is completed – 60-75 %	The algorithm for performing the practical skill is completed – 76-89%	The algorithm for performing the practical skill is completed - more than 90%

Exam 40 points.
The exam is carried out in 2 stages:
Stage 1 - clinical skills exam – 20
Stage 2 - theoretical knowledge exam – 20
Grand total score for the discipline (average score for units 60 + exam score 40) = 100 points
Grand total score for the discipline put into the record book.

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

Lesson 1 Clinical anatomy 2 h
Clinical anatomy of the heart and large blood vessels
Key questions covered in.
 1. The pericardial layer. location. description. blood supply. nervous nutrition.
 2. Topography of the branches of the aortic arch.
 3. Topography of the superior vena cava.
 4. Topography of the inferior vena cava.
 5. Topography of pulmonary circulation.
 6. Topography of coronary circulation
Recommended reading for the lesson
[13] pp.284-316
[15]
Atlas of Human Anatomy 4ed, Netter F.H., 2006, 210 246

Lesson 2 Clinical anatomy 2 h
Clinical anatomy of arterial and venous vessels of the upper and lower limbs.
Key questions covered in lesson 2.
1. Topographic anatomy of the arteries of the upper extremities
2. Topography of the subclavian artery
3. Axillary artery topography
4. Topography of the brachial artery
5. Topography of the radial artery
6. Topography of the ulnar artery
7. Topographic anatomy of the veins of the upper extremities
Recommended reading for the lesson
[13] pp 54-55; 83-85; 116-120
Gray`s anatomy 2020, 400-425; 463.
Atlas of human anatomy 4ed, Netter F.H., 2006

Lesson 3: Pathophysiology   2h
Pathophysiology of coronary heart disease. Etiology and pathogenesis.
Primary and secondary hypertension, etiology and pathogenesis.
Key questions covered in lesson 3.
1. Coronary heart disease, or coronary artery disease (CAD), definition.
2. Absolute and relative types of coronary insufficiency. The main causes and mechanism of development of coronary insufficiency.
3. Types of myocardial ischemia. Mechanism of development of angina pectoris, myocardial infarction and cardiosclerosis.
4. Arterial hypertension. Primary (essential) hypertension, etiology, pathogenesis.
5. Factors that cause stabilization of high blood pressure: kidney role, endocrine system role, vessel autoregulation imbalance of systemic arterioles.
6. Secondary (symptomatic) hypertensions, their etiology and pathogenesis.
Recommended reading for the lesson
[11];
Calor Mattson Porth. Essentials of pathophysiology. 2019

Lesson 4: Pathophysiology   2 h
Pathophysiological basis of cardiac conduction and rhythm disorders.
Typical hemodynamic disorders in cardiac valve diseases.
Key questions covered in lesson 4.
1. Disorders of cardiac impulse generation and conduction.
2. Arrhythmias, definition and types.
3. Pathophysiologic approach to classification of arrhythmias.
4. Etiology, pathogenesis and ECG changes in different types of arrhythmias.
5. Pathophysiology of the compensatory mechanisms in heart valve stenosis.
6. Pathophysiology of the compensatory mechanisms in heart valve insufficiency.
Recommended reading for the lesson
[11];
Calor Mattson Porth. Essentials of pathophysiology. 2019

Lesson 5: Pathophysiology   2 h

Etiology and pathogenesis of heart failure. Typical changes of hemodynamics in right and left heart failure.
Key questions covered in lesson 5.
1. Definition and types of heart failure.
2. Etiology of heart failure: cordial and extra cordial factors.
3. Pathophysiology of acute left heart failure.
4. Pathophysiology of acute right heart failure
5. Pathophysiology of chronic (congestive) left heart failure.
6. Pathophysiology of chronic (congestive) right heart failure.
Recommended reading for the lesson
[11]
Calor Mattson Porth. Essentials of pathophysiology. 2019

Lesson 6. Unit 1. IntroIM   2h
Repeat all questions from the 1st unit.
Key questions covered in.
1. Heart sounds. Normal and pathological. Additional heart sounds- characteristic, mechanism of formation.
2. Herat murmurs- characteristic, mechanism of formation.
3. Pulse research (rhythm, frequency, filling and strain of pulse). Sphigmography
4. Venous pulse research.
5. Measurement of arterial pressure.
6. Definition and classification of levels of arterial pressure.
7. Definition of a pulmonary hypertension.
8. Atherosclerosis. Risk factors. Causes. Clinical features, diagnostics.
Recommended reading for the lesson - [1]; [2]; [11]; [13]; [15]

Lesson 7. IntroPed 4h
Semiotics of congenital and acquired heart defects in children.
Key questions covered in lesson 7.
1. Features of the embryogenesis of cardiovascular system
2. The main stages of the fetal and newborn circulation
3. Anatomical features of the heart and blood vessels at different ages
4. Key cardiac function age indexes: heart rate, blood pressure, stroke volume, cardiac output, peripheral resistance, bioelectric phenomena and heart sounds, circulating blood volume.
5. Classification of congenital heart diseases (CHD)
6. Semiotics of the congenital heart diseases (CHD)
7. Hemodynamics of CHD
8. Hemodynamics of the most common acquired heart defects in children.
    –   Patent ductus arteriosus (PDA)
    –   Atrial Septum Defect
    –   Tetralogy of Fallout
    –   Transposition of Great Vessels
    –   Coarctation of Aorta
Recommended reading for the lesson: [6]; [7]; [8]; [9]

Lesson 8 IntroPed 4h
Semiotics of damage to the membranes of the heart in children. Acute and chronic cardiovascular insufficiency syndrome in children
Key questions covered in lesson 8.
1. Signs of lesions of myocarditis in children.
2. Signs of lesions of endocarditis in children.
3. Signs of lesions of pericarditis in children.
4. Definition, etiology, classification of acute and chronic cardiovascular insufficiency syndrome in children.
5. Mitral valvular insufficiency.
6. Mitral stenosis.
7. Aortic valvular insufficiency
Recommended reading for the lesson: [6]; [7]; [8]; [9]

Lesson 9:   Radiology   2h
Modern diagnostic imaging of the CVS. Normal radiological anatomy of the CVS.
Key questions covered in lesson 9.
1. Modern radiological methods of diagnosis of cardiovascular diseases.

2. Noninvasive methods: radiography, fluoroscopy, transthoracic and transesophageal echocardiography, Doppler ultrasound, cardiac CT, cardiac MRI, cardiac nuclear imaging.
3. Invasive methods: cardiac catheterization, ventriculography, coronary angiography, pulmonary angiography, aortic angiography, cerebral angiography, peripheral angiography.
4. Normal radiological anatomy of heart on radiographs.
5. Normal radiological anatomy of heart on CT and MR images.
6. Methodology of echocardiography.

Recommended reading for the lesson [14].

Lesson 10: Radiology   2 h
Diagnostic imaging of pathological conditions of the CVS.
Key questions covered in lesson 10.
1. Hemodynamic disorders and radiological signs of mitral stenosis.
2. Hemodynamic disorders and radiological signs of mitral insufficiency.
3. Hemodynamic disorders and radiological signs of aortic stenosis.
4. Hemodynamic disorders and radiological signs of insufficiency.
5. Radiological signs of pericardial effusion.
6. Radiological signs of myocarditis.
7. Radiological signs of congestive heart failure.
8. Radiological signs of left and right atrial enlargement
9. Radiological signs of left and right ventricular enlargement
10. Imaging in aortic dissection.
11. Imaging in pulmonary embolism.

Recommended reading for the lesson [14].

Lesson 11 Unit 2 – 2 h Intro IM
Repeat all questions from the 2 unit.
Key questions covered in.
1. Palpation of heart area, pathological pulsations of heart
2. Percussion of heart, delimitation of heart borders and vascular bunch
3. Auscultation of heart (rule of auscultation, standard points of auscultation).
4. Acute rheumatic fever. Causes. Clinical features, criteria of diagnosis
5. Syndrome of valvular disorders. Concept. Causes.
6. Mitral stenosis- causes, symptoms, physical, lab and instrumental criteria
7. Mitral regurgitation, prolapse- causes, symptoms, physical, lab and instrumental criteria
8. Aortic stenosis- causes, symptoms, physical, lab and instrumental criteria
9. Aortic regurgitation- causes, symptoms, physical, lab and instrumental criteria
10. Tricuspid stenosis- causes, symptoms, physical, lab and instrumental criteria
11. Tricuspid regurgitation- causes, symptoms, physical, lab and instrumental criteria
12. Interpret results of lab findings (rheumatologic tests)

Recommended reading for the Unit 2
[6]; [7]; [8]; [9]; [14]

Lesson 12. 4 h IntroIM
Inspection of patients with cardiovascular diseases.
Key questions covered in.
1. The main complaints, features of inquiry.
2. Inspection of the patient with disease of heart and palpitation of the heart areas (apex beat).
3. Percussion (delimitation of heart border) and auscultation of the heart (rules of auscultation, standard points of auscultation).
4. Sounds of heart (normal and pathological), mechanisms of their formation.
5. Echocardiography.
6. Pulse research (a rhythm, frequency, filling and pressure of pulse).
7. Research of the vein pulse.
8. Measurement of arterial pressure.
9. Perform independently inspection of patients with cardiovascular diseases – 2
10. Listen to pathological sounds and murmurs of heart in ISM Clinical Simulation Center – 1

Recommended reading for the lesson - [2]

Lesson 13. 4h IntroIM
Conducting system of heart. ECG analysis

Key questions covered in.
1. Analysis of an electrocardiogram, components of a normal ECG and possible pathological changes of the ECG elements.
2. Electrocardiography (automatism, conduction, contractility, refractivity). Percentage of waves and intervals
3. Elements of a normal ECG, calculation of an electrocardiogram.
4. Electrocardiograms at a hypertrophy of departments of heart.
5. An electrocardiogram at a myocardial infarction.1
6. Diagnostics of disturbances of a rhythm.
7. Report of ECG in Case – 1
Recommended reading for the lesson - [1], [3]

Lesson 14. 2h   IntroIM
The syndrome of inflammatory changes of heart layers
Key questions covered
1. Syndrome of inflammatory changes of an endocardium.
3. Chronic rheumatic heart disease
4. Endocarditis (primary and returnable), clinic, criteria of diagnostics.
5. Myocarditis - clinic, criteria of diagnostics.
6. Cardiomyopathies- clinic, criteria of diagnostics.
7. Pericarditis (fibrinous and exudative), clinic, criteria of diagnostics.
Recommended reading for the lesson - [1], [3]

Lesson 15. 2h   IntroIM
Arterial and pulmonary hypertension
Key questions covered in.
1. Systemic hypertension. Causes. Classification. Clinical features. Diagnosis
2. Systemic hypotension. Causes. Classification. Clinical features. Diagnosis
3. Definition and classification of levels of arterial pressure.
4. Arterial Hypertension. Complaints, inspection, criteria of diagnostics.
5. Definition of a pulmonary hypertension.
6. "Cor pulmonale" Classification. Complaints, clinical features, criteria of diagnostics
Recommended reading for the lesson - [1], [3]

Lesson 16. 4h   IntroIM
Acute coronary syndrome
Key questions covered in
1. Acute coronary syndrome. Causes, classification. Clinical features, criteria of diagnostics.
2. Stable angina. Causes. Classification. Clinical features, diagnostics. ECG- criteria.
3. Unstable angina. Causes. Clinical features, diagnostics. ECG- criteria.
4. Myocardial infarction. Causes. Clinical features, diagnostics. ECG- criteria.
5. Non ST-elevated MI. Causes. Clinical features, diagnostics. ECG- criteria.
6. Atherosclerosis. Risk factors. Causes. Clinical features, diagnostics.
7. Describe clinical stable steno cardia – 1
Recommended reading for the lesson - [1], [3]

Lesson 17 2h   IntroIM
The syndrome of acute and chronic cardiac failure
Key questions covered in lesson 17.
1. Syndrome of acute heart failure. Causes. Classification. Clinical features. Diagnosis.
2. Syndrome of chronic heart failure. Causes. Classification. Clinical features. Diagnosis.
3. Describe a heart failure according to FC (NIHA) – 1
Recommended reading for the lesson - [1], [3]

Lesson 18. Unit 3   2h IntroIM
Key questions covered in unit.
1. Survey of the patient with a heart disease.
2. Main complaints, clinical features.
3. Analysis of an electrocardiogram, components of a normal ECG and pathological changes of the ECG elements.
4. Electrocardiography (automatism, conduction, contractility, refractivity). Value of waves and intervals.
5. Elements of a normal ECG, calculation of an electrocardiogram.

6. Electrocardiograms at a hypertrophy of departments of heart.
7. An electrocardiogram at a myocardial infarction.
8. Diagnostics of disturbances of a rhythm.
9. Syndrome of inflammatory changes of an endocardium.
10. Endocarditis (primary and returnable), clinic, criteria of diagnostics.
11. Myocarditis - clinic, criteria of diagnostics.
12. Cardiomyopathies - clinic, criteria of diagnostics.
13. Pericarditis (fibrinous and exudative), clinic, criteria of diagnostics.
14. Chronic rheumatic heart disease. Causes. Clinical features, criteria of diagnosis.
15. Arterial hypertension. Causes. Classification. Clinical features. Diagnosis
16. Arterial hypotension. Causes. Classification. Clinical features. Diagnosis
17. Arterial Hypertension. Complaints, inspection, criteria of diagnostics.
18. "Cor pulmonale" Classification. Complaints, clinical features, criteria of diagnostics
19. Acute coronary syndrome. Causes, classification. Clinical features, criteria of diagnostics.
20. Unstable angina. Causes. Clinical features, diagnostics. ECG- criteria.
21. Myocardial infarction. Causes. Clinical features, diagnostics. ECG- criteria.
22. Non ST-elevated MI. Causes. Clinical features, diagnostics. ECG- criteria.
23. Stable angina. Causes. Classification. Clinical features, diagnostics. ECG- criteria.
24. Syndrome of acute heart failure. Causes. Classification. Clinical features. Diagnosis.
25. Syndrome of chronic heart failure. Causes. Classification. Clinical features. Diagnosis.
26. Complaints, the anamnesis, survey, a palpation, a percussion, auscultation, laboratory and instrumental methods for inspection of patients with blood diseases.

Recommended reading for the lesson - [1], [2], [3]

Methodological instructions for the implementation of INDEPENDENT WORK on the discipline
<mark>Total-22h.</mark>
Unit №1 – 6 h.
Diagram and its explanation
"Mechanisms of (cardiogenic) shock development"
1. Study textbook or any other resource about topic
2. Draw diagram
3. Write explanation in a Copy

Unit № 2 - 5 h.

Criteria table "Differentiation of stenosis and insufficiency of heart valves"
1. Study textbook or any other resource about topic
2. Choose criteria for comparison
3. Fill the table in a Copy

Unit № 3 – 8 h
1. Solve the clinical cases – ECG interpretation
2. To listen to pathological sounds and murmurs of heart in ISM Clinical Simulation center